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# USSR Report

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30 SEPTEMBER 1986

USSR REPORT  
LIFE SCIENCES  
BIOMEDICAL AND BEHAVIORAL SCIENCES

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RELATIONSHIP OF SPECTRAL BRIGHTNESS OF WHEAT FIELDS WITH PHYSIOLOGICAL  
STATUS AND YIELD

Novosibirsk IZVESTIYA SIBIRSKOGO OTDELENIYA AKADEMII NAUK SSSR: SERIYA  
BIOLOGICHESKIYE NAUKI in Russian No 18, Issue 3, Dec 85  
(manuscript received 7 Jul 80) pp 35-38

[Article by F. Ya. Sidko, V. I. Sokolov, A. F. Sidko and V. S. Filimonov,  
Institute of Biophysics, Siberian Department, USSR Academy of Sciences,  
Krasnoyarsk]

[Abstract] A study is reported of the relationship of spectral brightness and physiological status and yield of wheat fields. The spectral brightness coefficients of the wheat fields were determined in the summer of 1979 at the Krasnoyarsk Agriculture Institute. The brightness coefficient spectra were recorded with a field differential spectrophotometer between 11:00 and 15:00 to minimize sun height differences. The experimental studies showed that throughout the entire vegetation period there is a correlation between physiological status, biological productivity and spectral brightness coefficient, which can be used as a basis for development of optical remote methods of estimating the status and yield of wheat fields. Figures 5; references 9 (Russian).

6508/5915  
CSO: 1840/2200



## BIOLOGICALLY ACTIVE COMPLEX OF BURNET AND ITS EFFECT ON PHYSICAL ENDURANCE OF THE ORGANISM

Novosibirsk IZVESTIYA SIBIRSKOGO OTDELENIYA AKADEMII NAUK SSSR: SERIYA BIOLOGICHESKIYE NAUKI in Russian No 18, Issue 3, Dec 85  
(manuscript received 3 Jul 84) pp 41-45

[Article by G. R. Azovtsev, A. A. Zykov, Central Siberian Botanical Garden, Siberian Department, USSR Academy of Sciences, Novosibirsk; Novosibirsk State Medical Institute]

[Abstract] The Burnet plant (*Sanguisorba officinalis* L.) is a traditional medicinal plant used since ancient times in Russian, Tibetan, Chinese and European folk medicine as an antihemorrhagic and antiinflammatory agent in gastrointestinal disease. The active ingredient of this medicinal plant was isolated and analyzed and its effect on the physical endurance of experimental animals was determined. The experiments established that the complex of polyphenols in the plant has a stimulating effect on the physical endurance of white mice used in the experiments. The polyphenol complex increased the endurance under static and dynamic loads, even under high altitude conditions with hypoxia.

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## PRODUCING GOOD HARVESTS OF GRAIN CROPS IN NONCHERNOZEM ZONE OF USSR

Moscow BIOLOGICHESKIYE NAUKI in Russian No 1 (265), Jan 86  
(manuscript received 9 Aug 85) pp 5-19

[Article by L. A. Lebedeva on work done at Department of Agrochemistry, Moscow State University]

[Abstract] A discussion is presented of the results of investigations performed under the leadership of the author by a group of fellows and graduate students in the Department of Agrochemistry of Moscow State University. The task of the study was to answer two questions: i) Is it possible, by replacing a portion of the soluble form of nitrogen fertilizers with urea-formaldehyde fertilizer as a part of mineral fertilizer, to increase the effectiveness of high doses of nitrogen fertilizer in order to realize the potential capabilities of cereal plants; ii) What is the significance of the degree of cultivation of soddy podzolic soil for the productivity of plants with intensive application of mineral fertilizer? Studies were performed in 1979-1984 at the Agro-Biological Experimental Station of Moscow State University in Moscow Oblast. It was found that urea-formaldehyde fertilizer did not provide the nutrition necessary for highly productive cereal crops, and the introduction

of this fertilizer did not increase the effectiveness of high doses of mineral fertilizer. Increased cultivation of the soil did increase the yield of the crops tested. Fertilization at 100 kg/ha did facilitate more intensive growth and development of all the cereals studied, but this dose did not realize the potential capabilities of the plants. The accumulation of mineral forms of nitrogen in the soil in urea-formaldehyde fertilizer was added under conditions optimal for the plants, dependent on the temperature and was less than or about the same as in tests with urea alone. At over 100 kg/ha, the enzymatic activity of the flow was decreased, indicating deterioration of biological properties. The urea-formaldehyde fertilizer in soddy podzolic soil therefore did not act as a vegetative-synchronous fertilizer for the cereals and did not provide a system of their nutrition other than that provided by urea. The search for prolonged action nitrogen fertilizers therefore must continue. References 31 (Russian).

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BROWN BACTERIAL BLOTCH PATHOGEN OF RICE *PSEUDOMONAS SYRINGAE* VAN HALL, 1902

Moscow BIOLOGICHESKIYE NAUKI in Russian No 2 (266), Feb 86  
(manuscript received 3 Jan 85) pp 84-86

[Article by Ye. V. Matveyeva and E. Sh. Pekhtereva on work recommended by All-Union Scientific Research Institute of Phytopathology]

[Abstract] A study was made of the pathogen of the rice disease brown bacterial blotch, found in Primorskiy Kray in 1981. Study of the morphologic and culture-biochemical properties of pathogenic isolates showed that the pathogen is a member of the genus *Pseudomonas*, rod-shaped gram-negative bacteria. Examination of a one-day culture under the microscope established that it consisted of individual cells 0.5-0.7 by 2.5-3.0  $\mu$ m in size or pairs, rarely chains, no spores, no capsules. Further studies indicated that the pathogenic bacterium was a member of group 1A of species of the genus *Pseudomonas*. Like other members of this group, it is oxidase-negative, does not form L-ketogluconate, does not decompose fats or sodium pectate and does cause hypersensitive reaction upon inoculation of tobacco. Some of the isolates had arginine dihydrolase. The species is considered to be *P. syringae* pv. *syringae* Van Hall. References 13: 3 Russian, 10 Western.

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## ULTRASTRUCTURE OF SYNCHTRIUM ENDOBIOTICUM (SCHILB.) PERC. IN POTATO GERM CELLS

Leningrad MIKOLOGIYA I FITOPATOLOGIYA in Russian Vol 20, No 2, 1986  
(manuscript received 7 Jan 85) pp 88-93

[Article by O. G. Golubeva, Botanical Institute imeni V. L. Komarov,  
USSR Academy of Sciences, Leningrad]

[Abstract] Peculiarities of structural organization of parasite/host interactions during development of zoosporangia in dormant *S. endobioticum* spores in potato sprout tissues were explained by study of the susceptible variety Lorkh, artificially infected by potato canker. Damaged tuber gemmas were recorded 7, 14 and 30 days after infection and ultra-thin sections were studied by electron microscopy. The studies showed the uniqueness of this parasite. In structural organization with the host cell, it differs from both haustorial parasites and from endoparasites studied ultrastructurally and especially from the closely related, phylogenetically, *O. brassicae*. The common characteristics of these parasites are very few and they differ from one another more than from haustorial parasites and frequently are closely related to the haustorial complex in organization. Each of these representatives has its own pathway to adaptation to existence in the living plant cell. Adaptation of *S. endobioticum* to the host at the ultrastructural level involves the capacity to affect ontogenesis of the parasite cell and the close interconnection of ontogenesis of the parasite cell and host cell which is confirmed by ultrastructural study of development of diploid and haploid thalli of the parasite. Figures 4; references 10: 8 Russian, 2 Western.

2791/5915  
CSO: 1840/2223

## LOCALIZATION OF LIPIDS AND LIPASES IN PUCCINIA GRAMINIS PERS. CELLS IN ECTOPHYTE STAGES

Leningrad MIKOLOGIYA I FITOPATOLOGIYA in Russian Vol 20, No 2, 1986  
(manuscript received 18 Apr 85) pp 94-98

[Article by V. V. Karpuk, Yu. M. Plotnikova and L. N. Andreyev, Main Botanical Garden, USSR Academy of Sciences, Moscow]

[Abstract] Determination of the localization of lipids and lipolytic enzymes in different organs of *P. graminis* fungi, forming in the process of differentiation of infectious structures, is described and discussed. Two forms of fungus which differ in their specialization in the feeding plant (*P. graminis* f. sp. *tritici* which attacks wheat and *P. graminis* f. sp. *secalis* Eriks et E. Henn which attacks rye, predominantly) were used for comparison. Germination

of the uredospores and differentiation of the infectious structures were studied in vitro on the surface of defatted cellophane and in vivo on the leaf surface of susceptible (Saratovskaya 29) and resistant (Kaph) varieties of wheat and a susceptible rye variety (Kharkovskaya 60). The cytochemical study showed localization of lipids and lipolytic enzymes in uredospores, sprout tubules, appressoria, suborifice swellings and infectious hyphas. The lipids level decreased in the process of lengthening of the growth tubules and differentiation of infectious structures while the lipase activity decreased. Lipase activity could not be detected histochemically at the stage of infectious hyphae. There was apparent liberation of exogenous lipase on the epidermal surface of the leaf by the fungus growth tubules and high acid phosphatase activity in all organs of fungus forming in the ectophyte stage. Figures 8; references 14: 5 Russian, 9 Western.

2791/5915  
CSO: 1840/2223

UDC 632.4:633.511:582.288.42

PATHOLOGICAL CHANGES IN CELLS OF DETACHED COTTON ROOTS CAUSED BY  
VERTICILLIUM DAHLIAE KLEB. INFECTION

Leningrad MIKOLOGIYA I FITOPATOLOGIYA in Russian Vol 20, No 2, 1986  
(manuscript received 20 Sep 84) pp 127-131

[Article by T. A. Vlasova, Department of Plant Physiology, Moscow State  
University imeni M. V. Lomonosov]

[Abstract] A study of the initial period of interaction of *V. dahliae* with cotton plant root included an analysis of ultrastructural changes of the damaged plant-host cell with the use of artificially-infected detached cotton plant root. C-4727 (highly susceptible to verticillium wilt) and Tashkent 1 (less susceptible) roots were infected with a virulent biotype (Kh1-288) of *V. dahliae*. Preservation of the structure of the cell found in direct contact with the pathogen mycelium and the formation of papillae, which indicate the capacity of the cell to react to introduction of the fungus, confirm the assumption that death of the cell occurs after introduction of the pathogen. Figures 11; references 21: 9 Russian, 12 Western.

2791/5915  
CSO: 1840/2223

## VIRULENCE OF DRECHSLERA TERES ITO POPULATIONS IN CENTRAL AND SOUTHERN URALS

Leningrad MIKOLOGIYA I FITOPATOLOGIYA in Russian Vol 20, No 2, 1986

(manuscript received 13 May 85) pp 134-135

[Article by I. Yu. Kushnirenko, All-Union Institute of Plant Protection, Leningrad]

[Abstract] Analysis of the structure of populations of Drechslera Teres Ito according to the virulence character involved a study of damaged leaves of Krasnoufimskiy 95 barley, collected in the region of Sverdlovsk and Chelyabinsk in 1984. The genotypical compositions of the populations were studied in a monogenic set of differentiator-varieties by usual methods. Study of the quantitative composition of virulent D. teres clones in Central and Southern Urals regions showed that the populations differ in concentration of clones, virulent for the gene of resistance  $Pt_4$  ( $t_d=4.76$ ) but no differences were found in relation to other genes. There was a low concentration of genes virulent for gene  $Pt_3$ . Their level in the Sverdlovsk and Chelyabinsk populations was 3.1 percent and 3.9 percent respectively, compared to a 68.3 percent concentration of virulent clones for this gene of resistance in populations in other geographical regions. Study of the genotypical composition of the fungus populations showed differences in frequency of encounter of genes of virulence in the populations studied. In Sverdlovsk rye, 40.6 percent of the clones were avirulent to all tested genes of resistance and only 3.1 percent were universally virulent clones. There was a high rate of encounter of clones, avirulent for genes  $Pt_2$ ,  $Pt_3$ ,  $Pt_4$ ,  $Pt_5$  and  $Pt_6$ . There were no universally-virulent clones in the Chelyabinsk population. Genes of resistance  $Pt_2$ ,  $Pt_3$ ,  $Pt_5$  and  $Pt_6$  were found to be effective in relation to D. teres populations in the Central and Southern Urals. References 3 (Russian).

2791/5915

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UDC 633.18:582.288.45 (682.4)

## WILD GRASSES AS INOCULUM SOURCES OF RICE BLAST

Leningrad MIKOLOGIYA I FITOPATOLOGIYA in Russian Vol 20, No 2, 1986

(manuscript received 16 Jul 84) pp 136-138

[Article by V. B. Lebedev, V. A. Shkalikov and Kh. M. Khalvashi, Saratov Agricultural Institute imeni N. I. Vavilov, Department of Phytopathology]

[Abstract] A continuation of a study aimed at determining the range of plants which support P. oryzae, including species usually growing in rice plantings and the explanation of their role in preserving the infection involved greenhouse experiments for testing 45 species of plants related to 14 tribes of the

cereal family, the seeds of which were obtained from USSR botanical gardens in the rice-growing zone. Plants grown in pots were infected by rice blast while uninfected plants served as a control. The inoculum used was a spore suspension, washed off by distilled water from a 14-day-old culture of fungus of the Krasnodar population, grown on 5 percent carrot agar. Various forms of the ordinary globe thistle were found to be immune to the *P. oryzae* pathogen. These wild-growing grasses are ordinary representatives of weeds found in rice paddies and near them. Plants of the cat's-tail tribes were also immune to the pathogen. These plants were immune while there was strong infection by rice blast in experimental species and forms of *echinochloa*, brank, bristle-grass and rush juncals. The possibility of parasitism by rice blast was seen in 14 species from 8 tribes of grassy plants. The test results and the data obtained under natural conditions show that the experimental grasses are sources and transmitters of the rice blast pathogen. References 10: 9 Russian, 1 Western.

2791/5915  
CSO: 1840/2223

UDC 632.4:582.285.2:633.11

POPULATION STRUCTURE OF PUCCINIA RECONDITA ROB. EX DESM. F.SP. TRITICI ON  
DIFFERENT WHEAT SPECIES

Leningrad MIKOLOGIYA I FITOPATOLOGIYA in Russian Vol 20, No 2, 1986  
(manuscript received 13 May 85) pp 138-142

[Article by L. A. Mikhaylova and T. G. Metreveli, All-Union Institute of Plant Protection, Leningrad]

[Abstract] The effect of the genome composition of wheat species on the direction of selection for the virulence character and correlations between indicators of field resistance of various types of wheat are described and discussed. Characteristics of *P. recondita* clones, isolated from hard and soft wheats in 1980 and those isolated from hard and soft wheats in 1981 are tabulated, described and discussed. Selections from samples of various species of wheat and from samples of 1 species differed from 13.3 percent to 100 percent in frequency of clones avirulent for LRL. There was no correlation between the frequency of clones avirulent for Kavkaz wheat and resistance of plant hosts in any of the species studied. Clone frequency varied in all wheat samples only as a function of the size of sampling of clones or due to methodical errors in isolating clones. Selection against relevant genes of virulence was not evident. References 6 (Russian).

2791/5915  
CSO: 1840/2223

## HARMFUL EFFECT OF BASIC FUNGUS DISEASES OF GRAIN CROPS

Leningrad MIKOLOGIYA I FITOPATOLOGIYA in Russian Vol 20, No 2, 1986

(manuscript received 29 Oct 85) pp 143-153

[Article by T. I. Zakharova and A. Ye. Chumakov, All-Union Institute of Plant Protection, Leningrad]

[Abstract] A survey of the literature suggested that potential shortages of grain crops may be predicted according to specific indicators of the degree of harmfulness of basic grain crop diseases. Damage must be minimized by introduction of appropriate farming methods, especially in intensive agriculture. Data concerning the harmfulness of various grain crop diseases are presented in 12 tables, which are described and discussed in some detail. References 68: 57 Russian, 11 Western.

2791/5915

CSO: 1840/2223

UDC 631.523

BARLEY-RYE HYBRIDS OF *H.GENICULATUM* ALL X *S.CEREALE* L. AND THEIR PROGENY FROM FIRST BACKCROSSING WITH RYE

Kiev TSITOLOGIYA I GENETIKA in Russian Vol 20, No 2, Feb 86

(manuscript received 6 Dec 84) pp 125-130

[Article by L. A. Pershina, V. K. Shumnyy, L. I. Belova and O. M. Numerova, Institute of Cytology and Genetics, Siberian Department, USSR Academy of Sciences, Novosibirsk]

[Abstract] A study of primary hybrids of *H. geniculatum* (4x) and *S. cereale* (2x; 4x) and the possibility of obtaining fertile progeny from them is described and discussed. The tetraploid hybrids obtained included some plants capable of self-pollination and backcrossing with rye. The plants analyzed included 53 percent which were completely sterile, 35 percent which had male sterility but set seeds after pollination by rye and 12 percent which were fertile. Two of the fertile plants displayed the best seed setting; one ear of them contained up to 50 caryoposes which were more filled than those from the first backcross. Cytological examination of a single plant from the self-pollinated chromosomes revealed 14 chromosomes [7 barley+7 rye]. The triploid BC<sub>1</sub> plants had 7 barley+14 rye chromosomes and fertile plants were found among these plants. Figures 4; References 10: 3 Russian, 7 Western.

2791/5915

CSO: 1840/2225

## MUTABILITY OF SOFT AND DURUM VARIETIES OF WHEAT

Kiev TSITOLOGIYA I GENETIKA in Russian Vol 20, No 2, Feb 86  
(manuscript received 23 Sep 85) pp 130-134

[Article by N. V. Tavit, Syrian Atomic Energy Agency, Damascus]

[Abstract] A comparative study of sensitivity to the effect of physical and chemical mutagens in soft and durum wheat varieties of different ecotypes (soft wheats Site Siross, Meksipak and Florens Urer and hard wheats Khorani, Khamari, Dzhasiri 17 and Senator Kapelli) is described and discussed. The varieties were exposed to gamma rays and X-rays in 10 KR and 15 KR doses, to fast neutrons in 750 rad and 1000 rad doses, to diethylsulfate in 0.8 percent, 1.6 percent and 3.2 percent (by volume) concentrations and to sodium azide in  $3 \cdot 10^{-3}$  to  $48 \cdot 10^{-3}$  M doses. Chromosomal aberrations, frequency of chlorophyll mutations and viable mutations were counted. The tetraploid varieties had a higher frequency of chlorophyll mutations than the hexaploid varieties and the frequency of chromosomal aberrations and viable mutations was much higher in the hexaploid varieties. In view of the lesser sensitivity of hard wheats to the effect of mutagenesis according to the indicator of viable mutations, it was assumed that programs for improvement of hard wheat varieties by means of mutagenesis must involve studies on a wider scale than is the case with soft wheat. References 6: 1 Russian, 5 Western.

2791/5915

CSO: 1840/2225

UDC 633.16:631.524.86

## RESISTANCE OF SPRING BARLEY TO POWDERY MILDEW: SOURCES OF RESISTANCE AND THEIR EVALUATION IN CENTRAL NONCHERNOZEM ZONE OF RSFSR

Moscow DOKLADY VSESOYUZHNOY ORDENA LENINA I ORDENA TRUDOVOGO KRASNOGO ZNAMENI AKADEMII SELSKOKHOZYAYSTVENNYKH NAUK IMENI V. I. LENINA in Russian No 5, May 86  
(manuscript received 9 Jan 86) pp 2-3

[Article by E. D. Nettevich, corresponding member, All-Union Agricultural Academy, N. V. Davydova and A. V. Makarychev, Scientific Research Institute of Agriculture of the Central Rayons of the Nonchernozem Zone]

[Abstract] Breeding studies and field testing were conducted with spring barley to select varieties resistant to powdery mildew suitable for cultivation in the central nonchernozem region of the RSFSR. Employing both Soviet and foreign varieties of spring barley resulted in the identification of a number of varieties with enhanced resistance, among which the most promising were Zenit, Karat, Koral, KM-1192, Zhodinskiy-5, 65448/78, 74410/76 and others. Most were also highly resistant to nettled spot disease. The varieties in question were found suitable for use in the designated region for the breeding of powdery mildew resistant varieties and possessed the  $Mla_{13}$  gene or the  $Mlo$  allele. References 3: 2 Russian, 1 Czech.

12172/5915

CSO: 1840/2288



UDC 612.122/.123.014.46:547.262."52"

CHANGE IN PARAMETERS OF CIRCADIAN RHYTHM OF BLOOD LIPID AND CARBOHYDRATE METABOLISM AFTER CONSUMPTION OF ALCOHOL

Moscow VOPROSY PITANIYA in Russian No 6, Nov-Dec 85  
(manuscript received 22 Feb 85) pp 23-28

[Article by V. P. Latenkov, Department of Biology, Headed by Prof. G. D. Gubin, Tyumen Medical Institute]

[Abstract] A study is reported of the influence of one-time consumption of alcohol on the time organization and circadian dynamics of carbohydrate and lipid metabolism in the blood of healthy males. Studies were performed in four-day cycles. The first day was a control day, followed by one-time consumption of alcohol between 5 and 6 p.m. in a dose causing moderate intoxication (maximum blood concentration 1.6 to 2.1 g/l). Gas chromatography was used to track the dynamics of elimination of the alcohol. As elimination of alcohol was completed, requiring 12 to 15 hours, the changes in metabolism did not end, but rather reversed in direction for a number of indices, such as lactate, total lipids, triglycerides and free fatty acids. Some indicators, e.g., total cholesterol, did not change their circadian rhythm under the influence of alcohol, or changed only after the alcohol was completely eliminated (total phospholipids). Metabolic changes occurring after complete elimination of alcohol apparently resulted from disruption of the time organization and coordination of metabolic processes. The original circadian dynamics of the various carbohydrate and lipid metabolism parameters were restored only after 51 hours following the consumption of alcohol. References 14: 10 Russian, 4 Western.

6508/5915  
CSO: 1840/2205

ENVIRONMENT

UDC 614:7:613.632]-07

RELATIONSHIP OF MAXIMUM PERMISSIBLE CONCENTRATIONS OF CHEMICAL SUBSTANCES  
IN VARIOUS ENVIRONMENTAL OBJECTS

Moscow GIGIYENA TRUDA I PROFESSIONALNYYE ZABOLEVANIYA in Russian No 10,  
Oct 85 (manuscript received 30 Jul 84) pp 28-31

[Article by M. I. Mikheyev, G. I. Sidorin and Ye. P. Gorlinskaya, Institute  
of Labor Hygiene and Occupational Diseases, Leningrad]

[Abstract] A study was made of the relationship of the maximum permissible concentration of a substance in the air of the workplace, in the atmosphere and in water. The estimate was based on studies of a group of organic and several organometallic compounds for which the MPC has been established in at least two areas of the environment. The selection of substances was random. The ratio between the MPC's for various objects is informative and should be considered in optimizing hygienic standardization of chemical substances in the environment. The ratio of MPC's of chemical substances in different objects of the environment may be one of the most important criteria used to establish priorities in the conduct of epidemiologic studies. References 8: 6 Russian, 2 Western.

6508/5915  
CSO: 1840/2196

UDC 611.24-08:612.233

PROTECTIVE AND ADAPTIVE RESPONSES OF AIRWAY AND ALVEOLAR PULMONARY  
COMPONENTS TO AIR POLLUTANTS

Leningrad ARKHIV ANATOMII GISTOLOGII I EMBRIOLOGII in Russian No 4, Apr 86  
(manuscript received 2 Jul 84) pp 41-48

[Article by T. I. Bonashevskaya and N. B. Kumpan, Morphology Laboratory,  
Scientific Research Institute of General and Communal Hygiene imeni A. N.  
Syssin, USSR Academy of Medical Sciences, Moscow]

[Abstract] Outbred rats were employed in a study on the reactivity of the lungs to inhalation of different concentrations of 1,2-dichloropropane (DCP) for 5 to 60 days. Evaluation of the resultant data, derived from histological and ultrastructural examinations and cytochemical determinations of enzyme

activities, demonstrated time-related phasic changes in the resistance of the system to DCP. The protective potential of the airway and alveolar components was depressed between days 5 and 10, showing a subsequent increase in resistance to the adverse effects of DCP which peaked on ca. day 30. Thereafter, resistance decreased during the next 30 days of observation and study. Increased resistance to DCP between days 10 and 30 was attributed--at least in part--to enhanced efficiency of the alveolar surfactant system and biochemical and morphological evidence of greater barrier function of the alveolar epithelial cells and of the 'aerobarrier' component. Figures 1; references 11: 4 Russian, 7 Western.

12172/5915  
CSO: 1840/1235B

UDC 616.9-036.2-02:614.761]-07

INFLUENCE OF ANIMAL HUSBANDRY COMPLEXES ON ENVIRONMENT AND INFECTIOUS  
MORBIDITY OF POPULATION

Moscow GIGIYENA I SANITARIYA in Russian No 9, Sep 85  
(manuscript received 18 Mar 85) pp 13-16

[Article by A. N. Ivanov, Podolsk Sanitary-Epidemiologic Station, Moscow Oblast]

[Abstract] A study is reported of the influence of animal farms on soil, water supplies and the level of infectious and invasive morbidity of the surrounding population. Run-off from fields irrigated with manure, drainage water, sewage from villages and animal farms, water from reservoirs and sampling locations upstream and downstream from irrigated fields were studied, with samples collected 1 to 4 times per season. Water samples from 10 artesian wells and 3 other wells were collected and analyzed. Close contact was maintained with the veterinary and public health services. The systems for utilization of manure as fertilizer were found to facilitate dispersion of ammonia, organic matter, biological aerosols, microorganisms, helminth eggs and promote the accumulation of nitrites and nitrates in plants and the water supply, primarily as a result of failure to follow instructions for the operation of manure-utilization systems. Higher invasive morbidity of the population is observed in the area surrounding pig farms than cattle farms or control areas.

6508/5915  
CSO: 1840/2183

## EPIDEMIOLOGY

UDC 616.986.7-036.2-07:622.34

### EPIDEMIOLOGICAL AND CLINICAL ASPECTS OF LEPTOSPIROSIS IN MINERS

Kiev VRACHEBNOYE DELO in Russian No 4, Apr 86 (manuscript received 7 Jun 85)  
pp 105-108

[Article by V. V. Gazhiyev, L. S. Bondarev and G. A. Anishchenko, Departments of Epidemiology (Chairman: Professor A. A. Sokhin) and Infectious Diseases (Chairman: Professor L. S. Bondarev), Donetsk Medical Institute, Donetsk Oblast Sanitary-Epidemiological Station]

[Abstract] Sporadic outbreaks of leptospirosis were observed among the rural population of Donetsk Oblast in 1951. The infections were spread by cattle and pigs. These outbreaks were liquidated with proper public health measures. In 1962, leptospirosis was found among miners of the Donbass. In subsequent years, single and group cases have been seen in miners in various shafts in Donetsk Oblast. Epidemiologic analysis identified rats as the vectors. Microagglutination reaction tests showed antibodies to Icterohemorrhagic and Pomona serogroups in captured rats. Infection occurred through water contact and occasionally through improper food storage. An effective extermination program carried out in two phases (ratindon pellets) led to a disappearance of new cases. As a rule, diagnosis of leptospirosis was missed in 80% of the cases. The early stage of this disease is very dramatic: high fever, headache, general weakness, dizziness, tachycardia, etc. Clinical and laboratory findings are reported; early diagnosis is stressed. References 8 (Russian).

7813/5915  
CSO: 1840/2262

UDC 616.36-002.022-036-07

### INFECTIOUS PROCESSES OBSCURED BY PRESENCE OF HBsAg

Kishinev ZDRAVOOKHRANENIYE in Russian No 2, Mar-Apr 86  
(manuscript received 18 Sep 85) pp 6-10

[Article by S. N. Tsybulyak, Department of Infectious Diseases (Chairman K. A. Adriutsa) Kishinev Medical Institute]

[Abstract] The state of persistent carrying of HBsAg is one of the most intriguing theoretical problems in clinical and molecular virology affecting

public health problems. HBsAg carriers are the main reservoirs of viral hepatitis. The course of infectious process was studied on 393 individuals with HBs antigenemia discovered among blood donors: 208 men and 185 women with an average age of 27.4 and 26.5 years, respectively. Each HBsAg carrier was examined clinically and reexamined at least twice a year. In 45% of the examined individuals, no complications were observed; they were healthy carriers; 5% had acute subclinical viral hepatitis; 4% were diagnosed with acute nonicteric form of VH; 1% exhibited acute icteric VH; 10% had chronic subclinical VH; 30% had chronic persistent VH and 8%--chronic active VH. Concentration of HBs antigenemia dropped during the observation time in both apparently normal individuals and in the patients. References 7: 4 Russian, 3 Western.

7813/5915  
CSO: 1840/2268

UDC 613.632+614.7;66]-036.8

ANALYSIS OF ORGAN-TISSUE AND INTERSYSTEM DOMINANCE OF LOCALIZATION OF  
PATHOLOGY UPON EXPOSURE OF BODY TO HARMFUL CHEMICAL FACTORS

Moscow GIGIYENA I SANITARIYA in Russian No 7, Jul 85  
(manuscript received 17 Sep 84) pp 78-81

[Article by V. A. Tychinin, Scientific Research Institute of Labor Hygiene  
and Occupational Diseases, Kiev]

[Abstract] An analysis is presented of the dominance of location of pathology with equal reaction characteristics of organisms exposed only to chemical factors. The authors believe that the pathogenic targeting of the effects of harmful chemical factors may result from two major specifics of tropism: organ-tissue (local) and intersystem (functional or regulatory). Analysis of intersystem tropism of harmful chemical substances indicates that in the functional aspect, intersystem tropism differentiates which tissue, organ or system is most affected under specific conditions of exposure to harmful chemical factors by restructuring interrelationships in the vital activity of the entire organism. Organ-tissue tropism increases the pathogenic significance of intersystem tropism still further. References 20 (Russian).

6508/5915  
CSO: 1840/2182

EPIDEMIOLOGIC SIGNIFICANCE OF CIRCULATING PATHOGENIC ESCHERICHIA  
AMONG PATIENTS, CARRIERS AND THE ENVIRONMENT

Kiev VRACHEBNOYE DELO in Russian No 11, Nov 85 (manuscript received 30 May 85)  
pp 10-13

[Article by A. M. Kasyanenko, V. I. Bondarenko and L. V. Grigoryeva,  
Ukrainian SSR Ministry of Health; Scientific Research Institutes of  
Epidemiology and Infectious Diseases imeni L. V. Gromashevskiy and of General  
and Communal Hygiene imeni A. N. Marzeyev, Kiev]

[Abstract] In order to better assess the epidemiologic significance of pathogenic Escherichia in the Ukraine, the prevalence of this class of bacteria was evaluated in 6 oblasts in the period 1976-1984. Enumeration of isolates obtained from patients with acute intestinal infections demonstrated that 23.9% of the Escherichia isolates belonged to the 0151 serogroup, 14.18% to the 0119 group, and 5.48-6.48% each to the 025, 026, 0111 or 01 serogroups. The predominant isolates from children were 01 (28.7%), 0151 (19.3%) and 0111 (14.9%). Isolates from healthy individuals consisted primarily of serogroups 0128, 0126 and 027. In 1976-1984 the most commonly shared serogroups among humans, domestic animals and the environment were 026, 055 and 0111, while between human and environmental isolates the common serogroups consisted of 025, 0124, and 0151. Among domestic animals the predominant serogroups in the period 1979-1982 were 02, 08, 015, and 078. These observations substantiate the reversible transmission of a number of Escherichia serogroups in nature, and the obvious epidemiologic significance of such spread. References 5 (Russian).

12172/5915  
CSO: 1840/2295

DAIRY INDUSTRY TO IMPROVE CHILDREN'S PRODUCTS

Moscow MOLOCHNAYA PROMYSHLENNOST in Russian No 5, May 86 pp 13-15

[Article by doctor of technical sciences, Professor P. F. Krashenin, Istrinskiy Branch of the All-Union Scientific-Research Institute of the Dairy Industry, and engineers V. P. Semenova and L. T. Karpova, USSR State Agroindustrial Committee Department of Producing and Processing Livestock Goods: "Expanding the Production of Products for Children's Nutrition"]

[Text] The Communist Party and Soviet government are constantly focusing attention on questions of providing children with special nutritional products.

With these goals in mind, the dairy industry has organized the production of dry children's products at specialized milk-canning combines, and liquid and paste-type products at urban dairy plants.

The sector developed further in the 11th Five-Year Plan. In 1981 the Balta Milk-Canning Combine (Odessa Oblast) went into operation, and in January 1985 Sibay Milk-Canning Combine (Bashkir ASSR) began producing dietetic dry dairy products for children. During the years of the 9th through the 11th Five-Year Plans, 42 shops of children's dairy products were constructed at urban dairy plants (including seven in the RSFSR and 26 in the Ukraine). In Moscow (Lianozovo) in 1982, a specialized experimental plant was put into operation to produce liquid and paste-form children's dairy products, with a capacity to process 50 tons of milk per shift.

The capacities created made it possible to substantially increase the volumes of production of dry, liquid, and paste products for children. In 1985 milk canning combines turned out 42,700 tons of dry products, which made it possible to provide for an average of approximately 800,000 children per day. In addition, that same year the shops of the city dairy plants and the experimental plant in Lianozovo produced 40,000 tons of liquid and paste products, or 500,000 portions per day.

Organizing the production of children's nutritional products on an industrial basis is creating the conditions for ensuring stable quality of the goods produced and keeping strict control over it, and is promoting the gradual elimination of amateur production of these products at milk kitchens.

Enterprises of the dairy industry are producing the following dry children's products: Malyutka, Malysh, Vitalakt, and Detolakt; the milk gruels Malyshka and Krupinka; and the following liquids and paste products: sterilized Malyutka, Vitalakt DM, sterilized vitamin-enriched milk, children's kefir, acidopholus Malyutka, and children's cottage cheese; and also dry dietetic products: low-lactose mixtures and enpity (protein, fat-free, fatty, and anti-anemic). The technology and recipes for these products, apart from Detolakt (which is manufactured by license of the U.S. firm Abbott Laboratories), were developed by sectorial scientific-research institutes, jointly with the USSR Academy of Medical Sciences Institute of Nutrition.

In connection with the fact that demands on the composition and quality of products for children are increasing, scientific organizations face the task of creating technologies which bring them as close as possible to the composition and properties of mother's milk.

Scientific-research institutes of the dairy and food industry, and agriculture, jointly with the USSR Academy of Medical Sciences Institute of Nutrition and other scientific organizations, have carried out research based on which they have developed formulas and technologies of new, biologically complete, high-quality products adapted to the needs of various age groups of children, including those requiring dietetic or therapeutic nutrition. Normative documents have also been prepared on the food components used in their production, with indicators of quality. The Ministry of Machine Building for Light Industry and Food Products has prepared a set of equipment for producing liquid and paste dairy products for children of young ages (Al-ODP), which has been installed in the Rostov Milk Combine.

Here are a few outstanding characteristics of the new dairy products for children's nutrition: improved quality of the protein ingredient by introducing serum proteins into the formula in the form of KSB-UF/ED protein concentrates (serum protein concentrates obtained by methods of ultrafiltration and electrodialysis), Dialakt (serum protein concentrate produced by diafiltration), and SD-ED--demineralized dry serum (obtained by the method of electrodialysis); the close approximation of the composition of the fat ingredient to that in mother's milk by the addition of corn oil and internal fat from pigs; the increased mass percentage of hydrocarbons, up to their level in mother's milk, complete elimination of sucrose from the formula, and inclusion of refined milk sugar, lacto-lactulose, dextrin-maltose, and glucose to raise the bifidogenous properties of the products; and enrichment with vitamins A, D<sub>2</sub>, E, C, PP, B<sub>1</sub>, B<sub>2</sub>, B<sub>3</sub>, B<sub>6</sub>, B<sub>12</sub>, folic acid, and traces of iron, copper, zinc, manganese, and protective factors (bifidus bacteria, lysozyme).

Widespread introduction of new dairy products for children's and dietetic nutrition into production will require organizing industrial manufacture of serum protein concentrates and pig fat; setting up the production of biologically active additives; and significantly improving the quality of milk within the framework of the agroindustrial complex, using the combined forces of workers in livestock breeding and the dairy industry.

The Basic Directions of Economic and Social Development of the USSR for 1986-1990 and the Period Up to the Year 2000 set this task: "to significantly



expand the production of products for children's and dietetic nutrition, and products enriched with vitamins, proteins, and other components of increased biological and food value." The CPSU Central Committee and USSR Council of Ministers instructed the USSR State Agroindustrial Committee, in a corresponding decree, to increase the output of children's and dietetic nutritional products in the 12th Five-Year Plan.

In 1990, the production of dry dairy products is to be raised to 83,500 tons, and liquid and paste products to 100,000 tons, which requires the creation of additional capacities of 54.5 and 280 tons per shift, respectively.

For these purposes it is planned to reconstruct existing enterprises of children's products, alter the specialization of a number of milk-preserving combines currently making dry milk to produce them, and also to organize 53 shops of liquid and paste dairy products by reconstructing and expanding existing facilities and constructing new ones.

Scientific organizations face these tasks: to develop and introduce the technology for producing new dry and liquid products (sweet and sour milk), which have been brought as close as possible to mother's milk in the basic food ingredients and indispensable factors; and to create new dry dairy products with vegetable and fruit supplements for feeding children up to 1 year of age.

Assimilating the production of special dietetic products for children with various pathologies holds an important place in the plans. These products include dairy products for enteral feeding which have balanced concentrations of proteins, fats, carbohydrates, mineral substances, and vitamins; also products for feeding children suffering from phenylketonuria, or who have food allergies.

Targets have also been set for the development and introduction of the technology to produce an improved quality of dry milk, food components such as various types of flower, semolina, corn and sunflower oil, pig fat, food phosphatides and distilled monoglycerides, liquid molasses, dry starch syrup, glucose-fructose syrup, and polyvitamin combinations. Modification of the Al-ODP equipment unit is continuing, in order to organize series production of it.

Further development of the production of dairy products for children's nutrition, as well as increased quality of these products, will promote the resolution of one of the important social tasks of the 12th Five-Year Plan.

[Photograph caption] Balta Milk-Preserving Combine for Children's Products. Packaging Shop.

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12255

CSO: 1840/2247

UDC 614.31:[637.11:579.842.23]-078

CONTAMINATION OF MILK AND ITS PRODUCTS WITH YERSINIA ENTEROCOLITICA IN STAGES  
OF TECHNOLOGICAL PROCESS OF PRODUCTION

Moscow VOPROSY PITANIYA in Russian No 6, Nov-Dec 85  
(manuscript received 21 Mar 85) pp 57-59

[Article by I. A. Karplyuk, G. V. Yushchenko, L. D. Dogel, N. Ya. Salova and  
I. A. Kashintseva, Department of Nutritional Hygiene, Central Order of Lenin  
Institute for the Advanced Training of Physicians; Central Scientific Research  
Institute of Epidemiology, USSR Ministry of Health, Moscow City Sanitary-  
Epidemiologic Station]

[Abstract] Yersiniosis is not recorded as a separate nosologic form, but the  
specific share of this infection in various groups of diseases varies from 2.7  
to 22.7% in the USSR. The authors performed a study of the level of infection  
of milk with *Y. enterocolitica* throughout the entire path of milking, collection,  
storage, processing and distribution. At the same time, tests were performed  
for the presence of *Y. enterocolitica* in a number of commercial dairy products.  
*Yersinia* were found in fresh milk as well as pasteurized milk. All the strains  
found are pathogenic and antibiotic resistant. Stool sample studies of workers  
at dairy plants as well as the excrement of lactating cows were positive.  
Simultaneous studies of the extent to which the milk products met the existing  
standards revealed no correlation between this factor and the presence of  
*yersinia* in the products. Milk is therefore possibly an important epidemiolog-  
ical factor in the transmission of yersiniosis. References 8: 2 Russian,  
6 Western.

6508/5915  
CSO: 1840/2205

RNA-DEPENDENT DNA POLYMERASE FROM AVIAN MYELOBLASTOSIS VIRUS

Moscow EKSPRESS-INFORMATSIYA. OTECHESTVENNIY PROIZVODSTVENYY OPYT in Russian No 10, Oct 1985 pp 1-3

[Abstract by Yu.V. Remnev, L.V. Kolombet, and P.V. Babayeva of procedure in Omutinsk Chemical Plant, 1985]

[Text] Output of a commercial preparation of RNA-dependent DNA polymerase (reverse transcriptase, revertase) has begun for the first time in the USSR at the Omutinsk Chemical Plant. Series production of this enzyme has been set for 1985.

The discovery in the structure of virions of RNA-containing oncornaviruses of a new enzyme of RNA-dependent DNA polymerase, which is also called reverse transcriptase or revertase, has led not only to an understanding of the mechanism of the replication of retroviruses but also to the creation of a new research tool in the area of molecular biology, molecular virusology, and genetics.

The use of reverse transcriptase makes it possible to accomplish the following:

Determine the number of genes with a high degree of precision. The precision of similar measurements is  $\pm 1$  gene per haploid genome for seldom encountered genes and  $\pm 10$  genes for recurrent genes.

Study the primary structure of DNA. A great number of nucleotide sequences of ribonucleic acids have been decoded in the last several years by translating RNA sequences into DNA sequences with subsequent analysis of their structure by the methods of Maxam-Gilbert and Sanger. The method of reverse transcription using terminator-compounds that are encountered in DNA but that do not terminate the subsequent elongation of chains is one of the optimal methods of sequencing RNA.

Implement the synthesis of genomes. The progress of recent years in the technology of cloning recombinant DNA molecules has served as the prerequisite for developing methods of transforming complementary DNA that is synthesized by reverse transcriptase on an RNA matrix into a two-chain DNA that may be built into bacterial plasmids and cloned. This also makes it possible to obtain large quantities of individual structural genes in the form of two-chain DNA.

Analyze the structure of virus genomes. DNA transcripts by the method of heteroduplex analysis and molecular hybridization make it possible to study the

similarity and difference between related viruses, detect translocations and divisions of virus genomes, and selectively block some gene sections or others.

Avian myeloblastosis virus is the source for obtaining the enzyme. The virus is cultured in the organism of chicks of the White Leggor Belarus-11 breed, which is highly sensitive to the virus. The titer of the virus in the chicks' blood plasma, which was determined by adenosine triphosphatase [ATPase] activity, reaches  $10^{12}$ /mL. The avian myeloblastosis virus is purified by centrifugation in a saccharose concentration gradient. The virus particles are broken down by the addition of detergents, and afterwards the enzyme is separated by the method of ion exchange chromatography on R-11 phosphocellulose with subsequent affine chromatography.

The enzyme preparation is a colorless solution and is characterized by a specific biologic activity that is determined in a reverse transcription reaction (according to Spiegelman). The inclusion of 1 nmol desoxythymidinemonophosphate ( $H^3$ TMP) in acid-insoluble product for 10 minutes at  $37^{\circ}C$  was taken for 1 unit of activity. The activity of the commercial preparation is not less than 1-2 U/mL. Increasing the specific activity of the preparations to 5-10 U/mL is planned for the future.

The enzyme is packed in 100-mL quantities and placed in a buffer mixture with the following composition: 100 mmol/L potassium phosphate buffer (pH 8.0), 40 mmol/L potassium chloride, 2 mmol/L detiotreit [probably dithiothreitol], 0.02% R-40 Nonidet, and 50% glycerin.

It was established by the method of electrophoresis in a 10% polyacrylamide gel (under denaturing conditions) that the enzyme does not contain protein impurities and that its structure comprises two subunits with molecular masses of 6,500 and 95,000. The enzyme does not possess extraneous nuclease activity, which is confirmed by the absence of degradation of radiolabeled nucleic acids after incubation with a specimen of enzyme. Keeping the preparation at a temperature of  $-70^{\circ}C$  provides for a 75% preservation of the total enzyme activity for a month.

RNA-dependent DNA polymerase is sold for 7 rubles and 60 kopecks per unit of activity.

RNA-dependent DNA polymerase is currently manufactured by a number of foreign firms. The firm Boeringer Mannheim (FRG), which sells the enzyme for 35 marks per unit of activity (according to Spiegelman), is the main supplier of the enzyme. The specific activity of the enzyme is 0.1 U/mL.

The Japanese firm Takara Sudzo has communicated its readiness to sell revertase obtained by culturing myeloblasts. The cost of 1,000 units of this enzyme is 220-306 dollars.

Detailed information may be obtained from the address 612711, Kirovsk oblast, Omutinsk rayon, poselok Vostochnyy, Omutinsk Chemical Plant.

12794  
CSO: 1840/1234B

UDC 615.285.7.015.46.07:612.017.1

HYGIENIC EVALUATION OF MICROBIAL PREPARATIONS BASED ON THEIR EFFECT ON IMMUNE SYSTEM OF EXPERIMENTAL ANIMALS

Moscow GIGIYENA TRUDA I PROFESSIONALNYYE ZABOLEVANIYA in Russian No 2,  
Feb 86 (manuscript received 21 Mar 85) pp 36-39

[Article by I. A. Ivanova, Medical Institute, Riga]

[Abstract] The dynamics of the quantity of rosettes formed in lymphoid organs and blood serum of rats with autologic erythrocytes was studied to determine the degree of participation of T-cell elements in immune processes. The greatest changes were found in immunologic studies of laboratory animals exposed to inhalation of biological insecticides at a level greater than the maximum permissible concentration by less than one order of magnitude. The studies showed that the early stages of action of microbial preparations and the status of stress adaptation are formed with retention of the regulatory humoral mechanisms such as serum gamma globulins. The nature of immune reactions upon exposure to the preparations studied in small concentrations thus indicates the adaptation directionality of the changes. In order to determine the stage of development of the immune response upon exposure to microbial preparations it is desirable to use a combined study of both blood and lymphoid organs. The immunologic criteria must be used to establish hygienic standards for the permissible content of biological preparations in the air of the workplace. References 9: 8 Russian, 1 Western.

6508/5915  
CSO: 1840/2174

## INDUSTRIAL MEDICINE

UDC 616.15-008.9-02:613.632]-07

### INFLUENCE OF WORKING CONDITIONS ON BIOCHEMICAL BLOOD INDICATORS IN PRACTICALLY HEALTHY CHEMISTRY INDUSTRY WORKERS

Moscow GIGIYENA TRUDA I PROFESSIONALNYYE ZABOLEVANIYA in Russian No 10, Oct 85 (manuscript received 7 Jan 84) pp 48-49

[Article by G. P. Gerusova and L. K. Kvartovkina, Medical Institute, Volgograd]

[Abstract] A comparison was made in the nature of the biochemical blood indicators among workers as a function of long-term exposure to production factors. Studies were conducted with 387 workers from two facilities producing vulcanization accelerators. All of the workers were practically healthy with no contraindications for work at the chemical plants. The environment at the two plants was essentially the same except for the level of content of toxic substances in the air of the workplace, one having a high level of concentration of carbon disulfide, thiuram, altax and captax. Changes in biochemical blood indicators were found to vary with the level of these substances in the air of the workplace. Workers from the plant with the higher concentrations were found to have lower levels of total hemoglobin and oxyhemoglobin, higher levels of methemoglobin and sulfhemoglobin. There was a reliable decrease in oxidation-reduction enzyme activity. The higher the concentration of toxic substances in the air, the greater the number of blood indicators which differed significantly from the norm. References 9 (Russian).

6508/5915  
CSO: 1840/2196

UDC 616-057(035)(049.32)

### OCCUPATIONAL DISEASE HANDBOOK

Moscow GIGIYENA TRUDA I PROFESSIONALNYYE ZABOLEVANIYA in Russian No 10, Oct 85 pp 56-58

[Review by V. P. Saakadaze of book "Handbook of Occupational Diseases," edited by N. F. Izmerova, Moscow, Meditsina, 1983, 700 pages]

[Abstract] This review notes that the 2-volume handbook is a useful guide to the practical activity of occupational pathology physicians as well as plant physicians, making available the latest achievements of domestic and foreign

medical science in the area of occupational medicine. The first volume is arranged in a nontraditional manner--systems-syndrome damage to persons in contact with occupational factors is discussed in the presentation of the materials. Section 1 discusses the general principles for classification, pathogenesis, diagnosis, treatment and prophylaxis of occupational disease. Section 2 broadly and originally discusses the problem of occupational disease of chemical etiology. The second volume considers the rich experience in description of individual forms of occupational disease. Section 1 discusses dust pathology of the bronchopulmonary system. Section 2 discusses vibration disease and noise. Section 3 discusses occupational disease caused by stress on the nervous-muscular skeletomotor and vocal apparatus. Sections 4-6 discuss occupational pathologies related to the scientific and technical revolution and the development of chemistry, including such biological factors as antibiotics and fungi.

6508/5915

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UDC 618.19-006.6-036.6-076.5-543.426

LASER CYTOFLUORIMETRY AS ADDITIONAL METHOD OF DETERMINING DEGREE OF  
DIFFERENTIATION OF TUMORS IN BREAST CANCER PATIENTS

Moscow ARKHIV PATOLOGII in Russian No 1, Jan 86 (manuscript received 23 Nov 84)  
pp 44-48

[Article by V. N. Bogatyrev, V. D. Yermilova and A. S. Petrova, All-Union  
Oncologic Scientific Center, USSR Academy of Medical Sciences]

[Abstract] The purpose of this work was to study the content of nucleic acids in the cells in pretumorous and tumorous processes in the breast and to determine any possible relationship between histologic structure of the tumor and content of DNA and RNA in the tumor cells. DNA and RNA histograms with proliferative mastopathy showed significant changes in comparison to nonproliferative forms: a decrease in the number of diploid cells and an increase in the number of cells containing DNA in area 3C and an increase in the level of RNA. With manifest proliferation of the epithelium and cancer in the ducts, the DNA histograms were similar. The number of cells with elevated DNA and RNA content in infiltrative cancer was significantly greater than in proliferative mastopathy. A clear correlation was thus established in breast cancer patients between the degree of malignancy of the process and the content of nucleic acids in the tumor cells. Figure 1, references 18: 11 Russian, 7 Western.

6508/5915  
CSO: 1840/2199

UDC 616.211-002.34:615.849.19

LASER THERAPY OF NASAL FURUNCLES

Kiev ZHURNAL USHNYKH, NOSOVYKH I GORLOVYKH BOLEZNEY in Russian No 3,  
May-Jun 86 (manuscript received 20 Mar 85) pp 6-9

[Article by G. E. Timen and P. V. Vinnichuk, Department of Inflammatory  
Otorhinolaryngological Diseases, Kiev Scientific Research Institute of  
Otolaryngology imeni A. I. Kolomiychenko]

[Abstract] Therapeutic trials were conducted to assess the efficacy of CO<sub>2</sub> laser therapy in the management of nasal furunculosis vis-a-vis conventional therapy. The experimental group of patients (males and females, 15-75 years old), following local infiltration with anesthetics, were irradiated from a



Sayany-MT laser with a power output of  $10^2$ - $10^5$  W/cm<sup>2</sup> to form a coagulation perimeter around the furuncle, followed by resection in a cross-wise shape with a  $10^4$ - $10^5$  W/cm<sup>2</sup> beam. The entire procedure required only 1-2 min. The data showed that, in the 26 experimental patients, pain disappeared within 2-3 days of treatment (versus ca. 5.5-6 days in 39 control patients). Similarly, the healing process and recovery were accelerated in an equally imposing manner. The average hospital stay of the laser group was  $3.07 \pm 0.17$  days, and for the conventional group  $6.67 \pm 0.39$  days ( $P < 0.001$ ). It appears that high energy CO<sub>2</sub> laser treatment of nasal furuncles constitutes the treatment of choice in comparison with conventional therapeutic regimes. References 23: 22 Russian, 1 Western.

12172/5915  
CSO: 1840/2285

MARINE MAMMALS

UDC 613.281:599.745

BIOLOGICAL VALUE OF PINNIPED MEAT

Kiev VRACHEBNOYE DELO in Russian No 3, Mar 86 (manuscript received 23 Apr 85)  
pp 103-106

[Article by L. N. Flis, Laboratory of Chemistry and Expertise of Food Products  
(Chief: Zh. B. Levinton) Kiev Scientific Research Institute of Nutrition  
Hygiene]

[Abstract] Searching for new sources of meat alternatives, attention was directed towards sea mammals: portions of seal and walrus muscles contain high levels of protein. Amino acid analysis showed that pinniped meat contains 19 amino acids, 41-47% of which are essential amino acids (lysine, leucine, isoleucine and tryptophan). The highest level of utilizable proteins was found in meat of various seals and in walrus. Analysis of anabolic effect of these proteins confirmed high biological value of these meat sources. They compared well with beef, cod and casein controls. References 7 (Russian).

7813/5915  
CSO: 1840/2275

UDC 617-001.4-002.3-008.87-078

EXPRESS METHOD OF DETERMINING BACTERIA LEVEL IN PURULENT WOUNDS

Moscow LABORATORNOYE DELO in Russian No 2, Feb 86 (manuscript received 11 Mar 85)  
pp 107-109

[Article by S. M. Vishnevskaya and T. D. Samykina, Laboratory of Microbiology and Immunology, Institute of Surgery imeni A. V. Vishnevskiy, USSR Academy of Medical Sciences, Moscow]

[Abstract] Comparison of an express method of determining the quantitative bacteria level in wounds with a standard level of determining the bacteria count in 1 g of wound tissue involved a study of the degree of bacterial contamination in 670 biopsy specimens from burn wounds (192) and wounds of other etiology (478). The express method, using bacterioscopic study of blood smears, provides readings within 2-3 hours after biopsy material reaches the laboratory. Results of use of this method were practically equivalent to results obtained by the method of serial dilution. The express method can be quite important during emergency surgery and under field conditions but it only supplements the standard method of determining the bacteria count in wounds and provides a rapid tentative evaluation (whether the bacteria count has reached the critical level of 100 bacteria/1 g of wound tissue). The express method is simple and quite useful at the preliminary stage of study. References 10: 3 Russian, 7 Western.

2791/5915  
CSO: 1840/2245

UDC 617-001.4-008.87-078:579.083.158

ENZYMIC TEST OF MICROORGANISM LEVEL IN WOUNDS

Moscow LABORATORNOYE DELO in Russian No 2, Feb 86  
(manuscript received 10 Dec 84) pp 119-120

[Article by M. F. Kamayev and O. I. Oliyarnik, Department of Surgical Diseases No 4, Lvov Medical Institute]

[Abstract] A simple method of indirect enzymic determination of the microbe count which provides readings within 6 hours is based on the fact that microbe metabolism and enzyme secretion by them parallel the rate of their multiplication in a culture. The increase of the number of microbial cells in a specific

period of the logarithmic phase of growth is proportional to their initial quantity. The method uses the dependence of catalase yield during 6 hours of incubation on the initial microbe concentration in a medium with the microbe count being determined in decimal logarithms on 1 cm<sup>2</sup> of wound surface. Comparative studies of microbial cultures of different concentration and wound microflora, in which the count was determined in parallel in a petri dish and by this method, produced graduated curves and tables suitable for practical use.

A microbe count of 10<sup>5</sup>-10<sup>6</sup> to 1 cm<sup>2</sup> of wound surface or higher indicates a high degree of microbial infection while lower readings denote moderate or low degrees of infection. References 6 (Russian).

2791/5915  
CSO: 1840/2245

UDC 616.992.282-031.81+616.831

#### CASE OF GENERALIZED CHROMOMYCOSIS WITH PREVAILING INVOLVEMENT OF BRAIN

Kiev VRACHEBNOYE DELO in Russian No 4, Apr 86 (manuscript received 23 Aug 85)  
pp 78-79

[Article by B. Ye. Kornilov, N. S. Tolubayev, O. S. Kotsarev and V. V. Doroshenko, Oblast Clinical Hospital imeni I. I. Mechnikov, Dnepropetrovsk]

[Abstract] Chromomycosis used to be considered a tropical disease. Eventually, cases were reported from non-tropical areas. Considering the rarity of this disease and diagnostic difficulty, a case history is reported. A 25-year-old patient was treated for hemolytic anemia. The observed skin depigmentation was thought to be fungal in origin. Due to other symptoms (headache, double vision, crossed eyes with suspicion of a brain tumor), he was referred to the neurosurgical department. Symptoms increased in severity: deafness, damage of cranial nerves, positive Bolinsky signs, paralysis, coma and eventually death. Treatment included dexamethasone, methandrostenolone and symptomatic therapy. On the basis of anatomic pathology and the histology report, chromomycosis was diagnosed post mortem with skin and brain damage.

7813/5915  
CSO: 1840/2262

## OPTIMIZATION OF ALIMENTARY FACTORS ON SEA-GOING SHIPS

Kiev VRACHEBNOYE DELO in Russian No 3, Mar 86 (manuscript received 30 Apr 85)  
pp 106-108

[Article by A. M. Voytenko, Branch of Scientific Research Institute of Water Transport Hygiene, USSR Ministry of Health]

[Abstract] Food allocation was studied on 20 sea-going ships during 2-6 month long voyages in moderate and tropical climate zones. In 3/4 of the cases studied, caloric intake was within the prescribed norms. In others, imbalance was observed in protein, fat and carbohydrate intake. Vitamins were below the required levels because of long storage of the food sources. Another problem on long sea trips was the fresh water supply. Even with best possible equipment, long term storage leads to deterioration of the quality of water. On-board processing of sea water was recommended. In planning food supplies for longer trips, many factors must be considered: physiological variables, climatic factors, changing vitamin levels in stored food and physical exertion. References 6 (Russian).

7813/5915

CSO: 1840/2275

UDC 579.88:579.24

## PERSISTENCE OF MYCOPLASMA IN CELL CULTURES AND INDUCTION OF MORPHOLOGIC CHANGES

Moscow VESTNIK AKADEMII MEDITSINSKIKH NAUK SSSR in Russian No 3, Mar 85  
(manuscript received 1 Aug 84) pp 22-25

[Article by V. V. Neustroyeva, Institute of Epidemiology and Microbiology imeni N. F. Gamaleya, USSR Academy of Medical Sciences, Moscow]

[Abstract] A study is presented of the persistence of various forms of mycoplasmas in cell cultures, the nature of the infections they caused, its influence on the morphology of the culture and the possible correlation of pathogenicity in vitro and in vivo. Fifty-five strains of *M. hominis* were used, isolated from healthy and sick persons with various urogenital tract diseases, plus 17 strains of *U. urealyticum* and 9 mixed cultures, 15 strains of mycoplasma from rheumatoid arthritis patients and 20 strains isolated from apes (sick and healthy). It was found that the infection induced may be acute or latent, dependent on quantity present in the culture. A correlation was observed between pathogenicity in vitro and in vivo. The nature of changes induced by the mycoplasma in cells was found to depend both on the culture and the strain of mycoplasma. Most strains of *m. hominis* isolated from patients with rheumatoid arthritis and apes had no cytopathic effect, probably related

to their long-term cultivation under laboratory conditions and resultant loss of pathogenicity. Next, cultures showed increases in pathogenic effect. Long-term infection of cells with mycoplasmas leads to the appearance of morphologic changes, including granularity, vacuolization, changes in cell size and redistribution of chromatin, characteristic signs of mycoplasma infection. Figures 2; references 7: 2 Russian, 5 Western.

6508/5915

CSO: 1840/2197

UDC 616.98.578.881]-07:616.153.96-097-092.9

DYNAMICS OF SPECIFIC ANTIBODIES AND CIRCULATION OF ANTIGEN IN SERUM OF ANIMALS IN PERSISTENT RICKETTSIA PROWAZEKII

Moscow VESTNIK AKADEMII MEDITSINSKIKH NAUK SSSR in Russian No 3, Mar 85  
(manuscript received 1 Aug 84) pp 38-43

[Article by V. F. Ignatovich and L. G. Gorina, Institute of Epidemiology and Microbiology imeni N. F. Gamaleya, USSR Academy of Medical Sciences, Moscow]

[Abstract] Typhus is an infection wherein affected people may carry the pathogen for their entire lives. The purpose of this study was to determine the various reactions of humoral immunity in persistent Rickettsia prowazekii for possible inclusion of the indicators of these reactions in tests for carriers. The circulation of the antigen in the serum of infected animals was also studied for this purpose. The results obtained by studying sera were statistically processed. The studies established a new fact, that specific anti-hemolysins AHL can serve as a test to determine the status of the process occurring in the persistent Rickettsia population. The data obtained led to the conclusion that switching of AHL synthesis from IgM to IgG occurs with a decrease in the reproductive capability of the pathogen population and its gradual elimination. The study of the circulation of prowazekii Rickettsia antigen in the serum of infected animals established a parallelism of antigens with persistence of Rickettsia. The antigens detected in the serum serve as a convenient and useful tool for the study of the process of persistence. References 8: 5 Russian, 3 Western.

6508/5915

CSO: 1840/2197

## INFLUENCE OF NATURAL LIGHTING CONDITIONS ON CIRCADIAN RHYTHMS IN MAN

Moscow VESTNIK AKADEMII MEDITSINSKIKH NAUK SSSR in Russian No 3, Mar 85  
(manuscript received 14 Jul 83) pp 59-63

[Article by V. A. Matyukhin and A. A. Putilov, Institute of Physiology,  
Siberian Department, USSR Academy of Medical Sciences, Novosibirsk]

[Abstract] Lighting conditions are the major circadian rhythm synchronizing factor in homoiotherms. The technogenic time synchronizers employed by modern civilization produce some mismatch between geophysical and social hours for waking and sleeping. The authors attempted a quantitative estimation of the seasonal variability of circadian rhythms in Novosibirsk, recording a number of physiological indices in two volunteers during all four seasons of the year. The circadian rhythms of all the indicators studied were found to be related to geographic time signals to some extent. The form of the circadian curve was a compromise response to the action of the two relatively independent groups of synchronizing signals. The results obtained do not, however, allow conclusions to be drawn concerning the status of the entire circadian ensemble, and cannot be extended to all contingents of residents in the temperate latitudes. Figure 1; references 26: 17 Russian, 9 Western.

6508/5915  
CSO: 1840/2197

UDC 614.71/.72:618.387.2

## MORPHOLOGIC INDICES OF BIOLOGICAL EFFECT OF HYDROAEROSOLS OF VARIOUS COMPOSITIONS

Moscow GIGIYENA I SANITARIYA in Russian No 9, Sep 85  
(manuscript received 11 Mar 85) pp 40-42

[Article by L. Kh. Tsyganovskaya, L. N. Fetisova, V. S. Pashkova and P. G. Markov, Scientific Research Institute of General and Communal Hygiene imeni A. N. Sysin, USSR Academy of Medical Sciences, Moscow; Voronezh Affiliate, All-Union Scientific Research Institute of Synthetic Rubber; Voronezh Medical Institute]

[Abstract] A hygienic study is presented of the biological effects of hydro-aerosols of various compositions tested in animal experiments. Studies were performed on male rats with continuous inhalation exposure to each hydro-aerosol in various concentrations from 0.2 to 6 ml/m<sup>3</sup> for periods of 1-1/2 to 4 months in 370 l chambers. The following organs were morphologically studied: lungs, liver, kidneys, heart, lymph nodes and brain. An aerosol consisting of purified waste water was found to increase inflammatory changes with some slight suppression of defensive immune reactions. This aerosol was more complex than ordinary tap water in chemical composition and contained some bacterial contamination. An aerosol consisting of purified city sewage--containing

large numbers of biologically-active chemical components including chromium, zinc, formaldehyde, surfactants and petroleum products--had still greater effect on the blood circulation in the organs. References 4 (Russian).

6508/5915  
CSO: 1840/2183

UDC 613.632.4+614.72]-073.524

#### DEVELOPMENT AND INVESTIGATION OF INDICATOR ELEMENTS FOR PHOTOMETRIC GAS ANALYZERS

Moscow GIGIYENA I SANITARIYA in Russian No 9, Sep 85  
(manuscript received 15 Apr 85) pp 62-65

[Article by I. V. Korablev, V. M. Isayev and V. P. Arsenkin, All-Union Scientific Research Institute of Chemical Reagents and Highly Pure Chemical Substances, Moscow]

[Abstract] New indicator elements for photometric instruments have been developed, indicator strips based on polyethylene terephthalate polymer film 5-20  $\mu$ m thick with optical homogeneity, high strength and long life, allowing the use of indicator films of various widths with minimum thickness. An estimate is presented of the sensitivity of the new elements, which is found to be equal to cotton and paper-based elements. The new elements increase the operating life of gas analyzers by a factor of more than 5 in comparison to cotton and paper based elements. Figure 1, references 11 (Russian).

6508/5915  
CSO: 1840/2183

UDC 616.98-02:615.281]-07

#### STUDY OF ANTIMICROBIAL PROPERTIES OF FABRIC WITH HEXACHLOROPHENE

Moscow GIGIYENA I SANITARIYA in Russian No 1, Jan 86  
(manuscript received 11 Apr 85) pp 72-73

[Article by L. V. Samoylova, Ye. A. Plotnikova, E. A. Ampleyeva, L. V. Lyapustina, V. B. Marysayev, P. Ya. Shanina, A. S. Vasenin and N. P. Ageyeva, All-Union Scientific Research Anti-Plague Institute "Mikrob," Saratov]

[Abstract] The purpose of this work was to determine the antimicrobial activity of fabric with hexachlorophene against the pathogens of particularly dangerous infections and the degree of conservation of the activity after sanitary-hygienic and disinfection treatment as called for by the State standards. Studies were performed with strains of varying virulence of pathogens of plague, tularemia, anthrax, melioidosis and brucellosis. The sanitary-hygienic treatment consisted of treatment of the fabric samples in 0.5% aqueous solutions



of domestic synthetic detergents or household soap for 24 hours, followed by washing. Disinfection included autoclaving at 126°C for 60 minutes, immersion in a 1% solution of chloramine for 120 minutes, a 0.2% solution of formaldehyde with 0.2% soap solution for 60 minutes, or a 3% hydrogen peroxide solution with 0.5% detergent for 120 minutes. The experiments showed that the new hexachlorophene fabric has clear bactericidal effect against the pathogens studied. Sanitary-hygiene treatment reduced the antimicrobial effect but quite slowly over a number of treatment cycles. Autoclaving, or formaldehyde or hydrogen peroxide solution treatment is suitable for disinfection of the fabric. References 8: 7 Russian, 1 Western.

6508/5915  
CSO: 1840/2190

UDC 617.001.3/.6-031.14-02:614.8]-036.2-07

#### REDUCING EFFECTS OF INJURIES DUE TO HIGHWAY ACCIDENTS

Moscow ORTOPEDIYA, TRAVMATOLOGIYA I PROTEZIROVANIYE in Russian No 5, May 86  
(manuscript received 7 Aug 85) pp 51-53

[Article by V. L. Nebosenko and L. M. Lukyanov, Central Rayon Hospital, Aleksandrov Rayon, Vladimir Oblast]

[Abstract] An analysis was conducted on the factors affecting injury due to road accidents in Aleksandrov Rayon from 1981 through mid 1985. Highway-related accidents accounted for 36% of the total trauma cases in the rayon, with 53.6% of the cases involving working-age population. In the period 1981-1984, 29.5% of the cases were due to alcoholic intoxication, a figure which dropped to 19.7% in 1985. Through mid-1985, 53% of the trauma cases due to highway accidents involved rural residents, 51.7% of whom were inebriated at the time of the accident. In 1981, the death rate within the first hour of accident was 23.5%, and in 1985, 21.4%. Of the cases analyzed, 13.3% of the victims died while being transported to the hospital. The organization of a radio-dispatched ambulance service in 1985 ensured that 51.6% of the victims reached a hospital within 2 h of the accident, a marked improvement over the figure of 33% in the previous years. In addition, special ambulances have been outfitted to provide on-site assistance in disaster situations, and specialized surgical emergency units are being established at local medical facilities to treat trauma patients. Paramedical education has been expanded to cover car accident cases to ensure more frequent and better immediate care. A special neurotraumatological department has been organized to handle skull fractures and brain damage cases, the major cause of death in highway accidents.

12172/5915  
CSO: 1840/2289

## CLINICAL IMMUNOLOGY IN ASSESSMENT OF VIRAL HEPATITIS B

Kiev VRACHEBNOYE DELO in Russian No 11, Nov 85 (manuscript received 20 Nov 84)  
pp 13-18

[Article by M. B. Titov, Chair of Infectious Diseases, Lvov Medical Institute]

[Abstract] Various clinical immunological techniques were employed in assessing the immunopathogenic course of viral hepatitis B to determine their value in clinical medicine. Reliance on inhibition of rocket immunoelectrophoresis resulted in the detection of HBsAg in 0.88% of the general population, and in 8.9% of the individuals with a positive Wasserman test HBsAg was also found to be present in 12% of males with STDs. In the Lvov Oblast, 15% of the HBsAg subtypes were of the ad class, and 85% of the ay subtype. Blood group B predominated among patients with low HBsAg titers (26.6% vs. 19.1% among donors), and group A among patients with high HBsAg titers (37.1 vs. 49.3%), using rocket immunoelectrophoresis. Delayed-type hypersensitivity was found to develop in 61.9% of the patients in the mid-course of the disease, and leucocyte migration inhibition was obtained in 70% positive for HBsAg. Late appearance of delayed hypersensitivity and a negative leucocyte migration inhibition test in the early stages were felt to be indicators of an unfavorable outcome. A therapeutic trial with levimasole (150 mg/week; 4 weeks to 4 months) in combination with Ig (22-50 IU; i.v., 6 ml 1X to 2X at 6-day interval) in 12 HBsAg positive patients with severe arthralgia, fever and other extrahepatic manifestations resulted in complete alleviation of pain one day after Ig administration (3rd-4th week on levimasole) and disappearance of fever. In addition, stable remission was obtained in 4 patients. These findings suggest that combined therapy with Ig and levimasole constitutes a viable approach to the treatment of chronic HBsAg(+) hepatitis, and that several immunochemical methods may be useful in patient evaluation. References 9 (Russian).

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UDC 616.127-005.8-085+615.817+615.847.8

## PHYSICAL TRAINING WITH LOW FREQUENCY MAGNETIC FIELD PRETREATMENT OF POST-MYOCARDIAL INFARCTION PATIENTS

Kiev VRACHEBNOYE DELO in Russian No 11, Nov 85 (manuscript received 2 Apr 84)  
pp 49-51

[Article by M. Yu. Akhmedzhanov, A. A. Shatrov, L. V. Yezhova, B. A. Sokolov, V. V. Arkhangelskaya and S. Ya. Guz, Yalta Scientific Research Institute of Physical Therapy and Climatology imeni I. M. Sechenov]

[Abstract] The effects of low-frequency magnetic field (20 MTesla induction, 15 min/session for 12 sessions) treatment on performance on exercise cycle were assessed in the case of 100 post-infarction patients. The patients were males,

22 to 59 years of age, with EKG abnormalities, tested on the cycle 5 to 12 months after the myocardial infarction. Combination of subjective reports, EKG analysis and the results of blood and urine chemistries demonstrated that variable magnetic field therapy had an overall positive effect. In addition to diminished cardialgia and reduction in nitroglycerin intake, tolerance of physical exertion and increased capacity for physical work were demonstrated, along with objective evidence of hemodynamic improvement. The clinical improvements were rated as marked in 8% of the patients and acceptable in 87%. Five percent of the patients failed to show any changes. References 6 (Russian)

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UDC 576.858.77:595.768.12

CYTOPATHOLOGY OF COLORADO POTATO BEETLE (LEPTINOTARSA DECEMLINEATA SAY)  
AND OF ITS TISSUE CULTURE AFTER VIRUS INFECTION

Kiev TSITOLOGIYA I GENETIKA in Russian Vol 20, No 1, Jan 86  
(manuscript received 25 Mar 85) pp 36-39

[Article by V. Yu. Kanyuka, Ye. M. Sukhorada and N. V. Koretskaya, Institute  
of Molecular Biology and Genetics, UkSSR Academy of Sciences, Kiev]

[Abstract] A study of the cytopathology of the Colorado potato beetle and its  
tissue cultures infected by an iridovirus from a Kazakhstan mosquito is  
described and discussed. There was active reproduction of the mosquito  
iridovirus in Colorado potato beetle *Leptinotarsa decemlineata* Say tissues in  
vivo and in vitro. In intact tissues, the virus injures many tissues includ-  
ing the hypodermis, trachea, fat body and muscles. Intense reproduction of  
the virus was seen in a transplantable beetle hemocyte cell culture which  
indicates the presence of a cytopathological effect at various stages of infec-  
tion and an infection pattern typical of iridoviruses, revealed by formation of  
multinuclear cells, vacuolization of cells, presence of vast masses of virus  
material inside and outside the cells and the presence of cells with budding-  
off materials. References 9: 6 Russian, 3 Western.

2791/5915  
CSO: 1840/2224

UDC 578.826.24

CHARACTERISTICS OF INTERNUCLEAR INCLUSIONS FORMED DURING REPRODUCTION OF  
BOVINE ADENOVIRUSES

Kiev TSITOLOGIYA I GENETIKA in Russian Vol 20, No 1, Jan 86  
(manuscript received 25 Sep 85) pp 51-54

[Article by L. N. Nosach, R. V. Belousova, N. S. Dyachenko and L. M. Kolenkova,  
Institute of Microbiology and Virology, UkSSR Academy of Sciences, Kiev;  
Moscow Veterinary Academy]

[Abstract] A detailed cytomorphological study of changes in cells infected by  
adenovirus used Ad bos 1-Ad bos 3 belonging to serological subgroup I and  
Ad bos 4, Ad bos 5, Ad bos 7, Ad bos 8 belonging to serological subgroup II

and adenoviruses (isolates No. 18 and No. 3056), isolated from animals. Bovine adenoviruses of subgroup I formed inclusions typical of the Adenoviridae family while adenoviruses from subgroup II had inclusions caused by other adenoviruses. Isolates of adenoviruses, according to the morphology of the inclusions, are related to subgroup II bovine adenoviruses. References 11: 6 Russian, 5 Western.

2791/5915  
CSO: 1840/2224

UDC 576.32:575.113:575.113:577.15

MUTATION PROCESS AND MALIGNANT TRANSFORMATION INDUCED BY ADENOVIRUSES IN  
MAMMAL CELLS

Kiev TSITOLOGIYA I GENETIKA in Russian Vol 20, No 1, Jan 86  
(manuscript received 30 Aug 85) pp 55-58, 72

[Article by L. L. Lukash, Institute of Molecular Biology and Genetics, UkSSR  
Academy of Sciences, Kiev]

[Abstract] Differences in mutagenic and transforming effect of oncogenic type 3(BAV-3) bovine adenovirus and non-oncogenic type 1(Ad-1) human adenovirus were explained by use of the tumor promoter TFA which can modify these effects and the modifying effect of TFA on the mutagenic and transforming effect of recombinant DNAs (containing and not containing BAV-3) was studied at various periods after infection. Both adenoviruses have the capacity to induce gene mutations at 2 loci in cultivated mammal cells. The basic difference in mutagenesis induced by these viruses appeared after processing these cells with the tumor promoter TFA. The promoter greatly intensified mutagenic and transforming effect in the case of BAV-3 but had no effect in the case of Ad-1. The promoter also intensified the mutagenic and transforming effect of the "oncogenic" fragment of DNA of BAV-3. References 15: 9 Russian, 6 Western.

2791/5915  
CSO: 1840/2224

## DEVELOPMENT OF MOLECULAR GENETICS OF BACULOVIRUSES IN THE UKRAINE

Kiev TSITOLOGIYA I GENETIKA in Russian Vol 20, No 1, Jan 86  
(manuscript received 7 Aug 85) pp 59-66

[Article by I. P. Kok, Institute of Molecular Biology and Genetics, UkSSR Academy of Sciences, Kiev]

[Abstract] A brief history of the development of the molecular genetics of baculoviruses in the Ukraine describes stages of the work beginning with S. M. Gershenson's work in 1940-1950 up to the present. Practical significance of the scientific findings is discussed briefly. References 35: 23 Russian, 12 Western.

2791/5915  
CSO: 1840/2224

## ROLE OF L FORM IN PERSISTENCE IN PATHOGENIC BACTERIA

Moscow VESTNIK AKADEMII MEDITSINSKIKH NAUK SSSR in Russian No 3, Mar 85  
(manuscript received 1 Aug 84) pp 3-9

[Article by S. V. Prozorovskiy, Institute of Epidemiology and Microbiology imeni N. F. Gamaleya, USSR Academy of Medical Sciences, Moscow]

[Abstract] Since Klieneberger first described L transformation of bacteria in 1935, repeated studies in vitro have confirmed that the L form actually exists in nature. The author's studies and those of others indicate that the L form plays a role in the persistence of bacteria and the development of chronic infections. The role of the L form is discussed for streptococcus and the typhoid fever pathogen, indicating that some successes have been achieved in the study of the role of the L form in the process of persistence of bacteria. The major difficulties remaining in studies of the problem are noted, and a system of studies proving the significance of the L form in the process is recommended, including broad laboratory and clinical analyses allowing isolation of L forms from patients, determination of specific antibodies to L forms, experimental and clinical studies of the specifics of the immune status of the organism responsible for formation of the L form cultures, and experimental studies on animals allowing both modelling of the infectious process as a whole and determination of the specifics of pathologic changes caused by the L forms of bacteria or their revertants. It is concluded that the change in the structural organization of bacteria in the process of L transformation determines changes in their ecology both in vivo and in vitro. L forms may be significant in the pathogenesis of a few infectious processes. Their role is most probable in the development of chronic and recurrent infections. The system of proof of the role of the L forms in these diseases is rather complex, requiring further studies and new facts. References 78: 27 Russian, 51 Western.

6508/5915  
CSO: 1840/2197

EXPERIMENTAL PROOF OF CAPABILITY OF PERSISTENT INFLUENZA VIRUS OF CAUSING SLOW INFECTION

Moscow VESTNIK AKADEMII MEDITSINSKIKH NAUK SSSR in Russian No 3, Mar 85  
(manuscript received 1 Aug 84) pp 26-31

[Article by V. A. Zuyev, Ye. P. Mirchink, and A. M. Kharitonova, Institute of Epidemiology and Microbiology imeni N. F. Gamaleya, USSR Academy of Medical Sciences, Moscow]

[Abstract] A system of experimental proof is presented for revealing the capability of influenza virus to form a slow infection in a mammalian organism. It is shown that persistence of the influenza virus may occur in mice, either in the disease or as a result of immunization with live virus. Progeny of mice infected with the influenza virus during pregnancy showed characteristic signs of slow disease, including retardation of growth and degenerative changes in immunocompetent organs, endocrine glands and the central nervous system. The characteristic changes seen are best explained by assuming formation, in the progeny infected in the uterus, of a slow influenza infection similar to that seen in congenital rubella in humans or the slow infections in mice developing as a result of vertical transmissions of lymphocytic choriomeningitis virus in mice. The immature immune system of the fetus allows persistence of the influenza virus transmitted from the mother. Figures 5; references 18: 16 Russian, 2 Western.

6508/5915  
CSO: 1840/2197

ALLERGENIC PROPERTIES OF FUNGAL MICROORGANISMS

Moscow GIGIYENA I SANITARIYA in Russian No 7, Jul 85  
(manuscript received 23 Jan 85) pp 46-48

[Article by N. V. Stomakhina, Scientific Research Institute of General and Communal Hygiene imeni A. N. Sysin, USSR Academy of Medical Sciences, Moscow]

[Abstract] Fungi of the genera Cladosporium, Aspergillus, Penicillium and Alternaria, among others, can serve as allergens, causing asthma, allergic aspergillosis, exogenous allergic alveolitis and other diseases among sensitive persons. There are many occupations in which the danger of exposure to allergenic fungi is quite high. The literature indicates that fungi of various genera may cause immediate, delayed or mixed allergic reactions. References 32: 15 Russian, 17 Western.

6508/5915  
CSO: 1840/2182

## SYMPATRIC SPECIATION IN FUNGI

Moscow BIOLOGICHESKIYE NAUKI in Russian No 11, Nov 84  
(manuscript received 6 Feb 84) pp 5-16

[Article by Yu. T. Dyakov and S. N. Lekomtseva, Chair of Lower Plants, Moscow State University imeni M. V. Lomonosov]

[Abstract] A review is presented of available facts and theories on sympatric speciation in fungi, relying largely on data derived from studies on *Puccinia graminis*, *Nectria haematococca*, *Rhizotocnia solani*, *Aspergillus* sp., *Phytophthora* sp., etc. The collated information, unequivocally demonstrated the importance of primary isolation for sympatric speciation, with genetic reproductive isolation following as a consequence of physiological isolation. In other words, physiological adaptation to a unique ecological niche results in morphophysiological changes that prevent normal exchange of genetic material resulting, in effect, in genetic isolation. Full reproductive isolation among members of the same pre-existing species located in different ecological niches represents, in final analysis, the final stage in sympatric speciation. Tables 1; references 70: 12 Russian, 58 Western.

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UDC 615.099.0.567

CYTOGENETIC ACTIVITY OF METABOLITES OF CERTAIN PESTICIDES, REPRESENTATIVES  
OF SOME CHEMICAL COMPOUND CLASSES

Kiev TSITOLOGIYA I GENETIKA in Russian Vol 20, No 2, Feb 86  
(manuscript received 26 Nov 84) pp 143-145

[Article by M. A. Pilinskaya, All-Union Scientific Research Institute of  
Hygiene and Toxicology of Pesticides, Polymers and Plastics, Kiev]

[Abstract] An analysis of the cytogenetic activity of tetramethylthiourea [TMTM], phthalamide, methyl benzimidazol-2-yl-carbamate [BMK], and methyl 3-hydroxyphenylcarbamate [MGFK] with use of chemically pure samples of the compounds was performed using a culture of peripheral blood lymphocytes of healthy persons as test systems. Cells were treated by the substances in the last 28 hours of incubation lasting 53-55 hours. Analysis of the chromosomal preparations was performed by the usual method. Phthalamide and BMK did not display clastogenic activity but BMK caused hyperspiralization of the chromosomes and accumulation of mitosis. The action of TMTM in a range of concentrations of 0.1-10.0 mkg/ml, produced only a slight tendency toward an increase of chromosomal aberrations. MGFK produced pronounced cytogenetic activity which, in concentrations of 100 or 200 mcg/ml, formed not only fragments but also metabolic reconstructions of chromatid and chromosomal types. Comparison of the cytogenetic activity of these compounds with initial pesticides studied previously showed the metabolites to have mutagenic properties similar to those of the initial compounds or to have quite different mutagenic properties as a result of activation or deactivation processes. References 6: 5 Russian, 1 Western.

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CSO: 1840/2225

ALCOHOLISM OF PARENTS AND THEIR CHILDREN

Kishinev ZDRAVOOKHRANENIYE in Russian No 2, Mar-Apr 86  
(manuscript received 30 Jan 86) pp 57-59

[Article by A. D. Barova, Department of Obstetrics and Gynecology (Chief: Professor G. A. Palladi) First Therapeutic Faculty of Kishinev Medical Institute]

[Abstract] Use of alcohol during pregnancy leads to serious consequences: abortions, malformations, underdevelopment, premature deliveries, and even toxemia. Either parent's drinking habits contribute to this problem, whether it is a single phenomenon (during conception) or a chronic problem (during pregnancy). Use of alcohol during the first trimester has a teratogenic effect; the nervous system is affected most severely. Alcohol increases perinatal and infant mortality. Children of alcoholics are physically and mentally less developed than normal babies; they suffer from psychological and somatic disorders. It is asserted that pregnancy and alcohol do not mix. References 9 (Russian).

7813/5915  
CSO: 1840/2268

PESTICIDES--TWO-EDGED SWORD

Riga NAUKA I TEKHNIKA in Russian No 3, Mar 86 pp 14-15

[Article by Artur Priyeditis, candidate of biological sciences]

[Abstract] Were it not for chemical pesticides (and herbicides), the annual loss of crops in Latvia would represent some 25% of the harvest. While much has been said about the environmental impact of pesticides and the danger of their entering the human food chain, such discussions generally tend to overlook the striking advances that have been made in the last decade or so in the design of pesticides and their use. In general, newer pesticides are marked by lower toxicity and greater efficiency against their biological targets, resulting in the use of significantly lower concentrations. However, their cost has increased greatly but so has their cost effectiveness which, in effect, renders their use even more economical than before. In addition, in Latvia,

12 monitoring stations have been established to monitor the pest situation and plan the rational application of pesticides. Such an approach reduces even further the risk of environmental contamination. Figures 2.

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UDC 613.632:615.285.7]-07:[616.839+616.45

#### STATUS OF CATECHOLAMINE METABOLISM OF PERSONS IN CONTACT WITH DITHIOCARBAMATES

Moscow GIGIYENA TRUDA I PROFESSIONALNYYE ZABOLEVANIYA in Russian No 10,  
Oct 85 (manuscript received 7 Feb 84) pp 50-51

[Article by L. M. Kaskevich, All-Union Scientific Research Institute of Hygiene and Toxicology of Pesticides, Polymers and Plastics, Kiev]

[Abstract] The dithiocarbamic acid derivatives tetramethylthiuram disulfide (TMTD) and cineb are widely used in agriculture. The present study examined the functional status of the sympathetic-adrenal system in persons in contact with these substances. A total of 96 subjects were studied, 60 in contact with TMTD, 36 with cineb. There were 69 women and 27 men in the test group. Subjects in contact with TMTD showed a reliable increase in excretion of adrenaline and dopamine. The noradrenaline/dopamine ratio was reliably decreased. Changes in catecholamine metabolism were still greater in workers contacting cineb, including an increase in excretion of noradrenaline, a possible early indication of poisoning. Disorders in functional activity of the sympathetic-adrenal system, a pathogenetic link in the action of dithiocarbamates, may facilitate development of pathologic changes in the cardiovascular system and other organs and systems. References 3 (Russian).

6508/5915

CSO: 1840/2196

#### DRUG ADDICTION: PRICE OF ILLUSION

Moscow SOVETSKAYA KULTURA in Russian No 60, 20 May 86 p 8

[Interview conducted by V. Shvarts with G. Morozov, director, Central Scientific Research Institute of General and Forensic Psychiatry, USSR Academy of Medical Sciences]

[Abstract] The problem of drug addiction in capitalist countries has reached epidemic proportions, affecting as it does some 48 million people in the USA, Canada, South America and Western Europe. The reasons for this are largely social and tied in with high crime rates, unemployment, lack of moral responsibility, and disillusionment with the so-called 'freedom'. Such a situation is, of course, unthinkable in the USSR where the entire social system is

concerned with the wellbeing of everyone, even those individuals who do not meet acceptable norms of behavior. In the Soviet Union positive steps are being taken to prevent such problems and to control alcohol abuse. These take various forms but include public education about the evils of drug and alcohol abuse as well as the creation of an optimal social environment as the most important factors. For maximal effectiveness educational efforts must begin at an early age, and every step must be carefully thought out in order not to lend itself to misinterpretation. Morozov's institute and institutes of the USSR Ministry of Health are preparing an entire series of appropriate audio-visual materials for educating the youth and adults about the pitfalls of drug and alcohol abuse.

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HYGIENIC ASPECTS OF USE OF EXPOSURE TESTS FOR QUANTITATIVE ASSAY OF EFFECT OF HARMFUL SUBSTANCES THROUGH THE SKIN

Moscow GIGIYENA I SANITARIYA in Russian No 9, Sep 85  
(manuscript received 8 Apr 85) pp 71-74

[Article by Yu. L. Yegorov and R. A. Ryazanova, Moscow Scientific Research Institute of Hygiene imeni F. F. Erisman]

[Abstract] The authors point out that the use of exposure tests and biological limits for determination of maximum permissible concentrations of substances which may be absorbed through the skin encounters a number of obstacles. Although maximum permissible concentrations have been established for some 1500 substances, biological limits have been developed abroad for only 50; of the 17 compounds for which maximum permissible exposures to the skin have been developed in the USSR biological limits are known for only two of them. Biological limit exposure testing requires in many cases drawing of large quantities of blood from the veins, preventing use of the method in daily practice. Continued studies for development of biological limits in coordination with determination of maximum permissible skin exposures for industrial poisons is desirable to meet the needs of public health practice. Such studies should be accented particularly for organophosphorous, chlorinated organic and other pesticides, metals and their compounds, as well as substances used in the production of polymers. References 15: 14 Russian, 1 Western.

6508/5915  
CSO: 1840/2183

## STUDY OF EMBRYOTOXIC EFFECT OF CERTAIN TRICHOTHECINIC MYCOTOXINS

Moscow GIGIYENA I SANITARIYA in Russian No 1, Jan 86  
(manuscript received 17 Dec 84) pp 19-20

[Article by A. B. Levitskaya, L. V. Kravchenko and V. A. Tutelyan, Institute of Nutrition, USSR Academy of Medical Sciences, Moscow]

[Abstract] A comparative study is presented of the embryotoxic effect of toxin T-2, a metabolite of microscopic fungi of the genus *Fusarium*, and a product of its deacetylation, toxin NT-2, in various species of animals. Studies were performed on female Wistar rats. The LD<sub>50</sub> of the toxins upon a single intragastric administration in 1% ethanol was determined. Embryotoxicity was studied in four groups of rats receiving various doses of the toxin during various stages of pregnancy. The study showed that acute toxicity for female Wistar rats was the same as for males. Pregnant females were more sensitive to T-2 toxin. Embryotoxic effects were seen, even at doses too low to cause symptoms of poisoning in the pregnant rats. References 11: 6 Russian, 5 Western.

6508/5915  
CSO: 1840/2190

UDC 615.9.01.4.07:519.24

## 'TOXICOLOGIA' SPECIALIZED INFORMATION RETRIEVAL SYSTEM

Moscow GIGIYENA I SANITARIYA in Russian No 1, Jan 86  
(manuscript received 14 Feb 85) pp 53-55

[Article by B. A. Kurlyandskiy, V. K. Shitikov and V. N. Tikhonov, Scientific Research Institute of Organic Intermediates and Dyes, Moscow]

[Abstract] The "toxicologia" information retrieval system which runs on ES (unified system) series computers contains compounds which are most similar in chemical structure to substances utilized and produced by the aniline dye industry, including toxicology and hygienic information. Substances covered include the chemical derivatives of benzene, naphthalene, anthraquinone, as well as polycyclic and complex heterocyclic compounds. Data on each compound include: name and synonyms, formula, physical chemical properties and solubility in various media, formalized description of the chemical structure, sanitary norms for exposure to the substances in various media, danger class and method of determining concentration in air, major clinical diagnostic data, most damaged organs and systems, and a list of bibliographic references. The system can be used by organizations studying problems of hygiene and prophylactic toxicology, as well as by industrial organizations requiring toxicologic information for planning and writing of technical standards. References 7 (Russian).

6508/5915  
CSO: 1840/2190

## MUTAGENIC ACTIVITY OF NEW ORGANOPHOSPHORUS PESTICIDES

Moscow GIGIYENA I SANITARIYA in Russian No 1, Jan 86  
(manuscript received 19 Mar 85) pp 65-66

[Article by L. A. Komissarova, Lvov Medical Institute]

[Abstract] A study is presented of the mutagenic activity of derivatives of the new Soviet pesticide geterofos, sodium salt of O-ethyl-O-phenylthiophosphoric acid, O-ethyl-O-phenylchlorothiophosphate and O-ethyldichlorothiophosphate. The method used in this study was noting of recessive sex-linked lethal mutations in drosophila, plus the cytogenetic method of analysis of bone marrow cells in mammals. Results of the studies indicated that none of the substances studied caused a reliable increase in the frequency of chromosomal aberrations in comparison to the control. The major type of damage in all cases consisted of individual and paired fragments. Results thus indicate that the derivatives studied have no mutagenic activity in the doses studied. However, the studies indicated a close positive correlation, in flies and rats, of the reaction to the pesticide. References 17: 12 Russian, 5 Western.

6508/5915  
CSO: 1840/2190

UDC 611-018.46-086:616.981.25+612.273.2

ULTRASTRUCTURAL STUDIES ON COMBINED EFFECTS OF STAPHYLOCOCCAL TOXIN AND  
HYPOXIA ON BONE MARROW

Leningrad ARKHIV ANATOMII GISTOLOGII I EMBRIOLOGII in Russian No 4, Apr 86  
(manuscript received 30 Oct 85) pp 29-33

[Article by G. K. Gogichadze and N. N. Kacharava, Electron Microscopy Laboratory,  
Scientific Research Institute of Hematology and Blood Transfusion, Georgian  
SSR Ministry of Health; Department of Pediatric Orthopedics, Scientific Center  
of Traumatology and Orthopedics, Georgian SSR Ministry of Health, Tbilisi]

[Abstract] An ultrastructural study was conducted on the effects on bone  
marrow of a combination of staphylococcal toxin  $O_{15}$  in conjunction with hypoxic  
hypoxia (2 h/day; 1-30 days), employing outbred white rats as the model system.  
Destructive changes were evident in all cell lines within 24 h. The general  
features consisted of, among other alterations, cytoplasmic vacuoles with  
moderately and highly electron-dense bodies. The changes were particularly  
noticeable in the lymphoid and granular elements. Thrombocytes tended to form  
giant cells, while the erythroid line was relatively free of ultrastructural  
evidence of damage. Relatively normal morphologic parameters were observed  
between days 21 and 30. A few basophils presented with elongated electron-  
transparent formations reflecting, apparently, an enzyme deficiency, and some  
plasmacytes still had extensively vacuolized cytoplasm with lipid inclusions.  
Hypoxic hypoxia was felt to have an adverse effect on the resistance of the  
bone marrow to the toxic effects of the staphylococcal toxin. Figures 3;  
references 3 (Russian).

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CSO: 1840/1235B

ARCHITECTONIC FEATURES OF BRONCHIAL TREE OF ARCTIC FOX AS MANIFESTATION OF ADAPTATION TO FAR NORTH CLIMATE

Leningrad ARKHIV ANATOMII GISTOLOGII I EMBRIOLOGII in Russian No 4, Apr 86  
(manuscript received 20 Aug 85) pp 34-41

[Article by G. S. Shishkin, T. V. Voyevoda, R. I. Valitskaya and  
N. V. Ustyuzhaninova, Laboratory of Functional Pulmonary Morphology,  
Institute of Physiology, Siberian Department, USSR Academy of Medical  
Sciences, Novosibirsk]

[Abstract] Casting studies were conducted on the bronchial tree of the Arctic fox (*Alopex lagopus*) for comparison with bronchial trees of dogs in order to identify characteristics in the former that would indicate adaptive change in response to climatic conditions. The comparison revealed marked differences between the two species, with the Arctic fox displaying a much denser structure in terms of the number of bronchi, secondary bronchi and bronchioles, estimated to be 1.5-fold greater in the fox. Subsegmentation in the fox also exceeded that in the dog, favoring greater warming of the inhaled air. These features of the tracheobronchial tree in the Arctic fox were taken as evidence of adaptive changes in response to the harsh climate of the Far North. Figures 3; tables 1; references 14: 11 Russian, 3 Western.

12172/5915

CSO: 1840/1235B



INTERRELATIONSHIP OF SOCIAL AND BIOLOGICAL FACTORS IN DIFFERENTIATION OF  
CLINICAL FORMS OF SCHIZOPHRENIA

Kiev VRACHEBNOYE DELO in Russian No 11, Nov 85 (manuscript received 24 Jun 85)  
pp 103-105

[Article by M. V. Mikolayskiy, Chair of Psychiatry, Ivano-Frankovsk Medical  
Institute]

[Abstract] The clinical polymorphism of schizophrenia was the basis for attempting a multifactorial analysis of the interrelationship of social and biological factors in the determination of the clinical forms of the disease. The biological factors consisted of such parameters as ABO blood groups, compatibility with maternal blood, complement and IgG, IgM and IgA levels, neuroautoimmunity, etc., while social factors covered such parameters as marital status, education, and family rank. Correlation of the clinical manifestations with the biosocial parameters demonstrated that the latter factors influence the clinical manifestations of schizophrenia and, perhaps, constitute etiologic factors. Both continuous malignant and sluggish forms shared the fact that the patients tended to be male, that initial manifestations were evident below the age of 20, that they were single with unfinished higher education, tended to be students, and shared parents with 'characterological' deviations. The malignant forms were accompanied by positive skin tests for 'antitissue immune sera' and absence of anti-brain antibodies, while the sluggish form was distinguished by the reciprocal immunological findings. In recurrent and seizure-like progressive forms psychotic episodes were accompanied by somatic disorders, the patients were generally 40 or older, were married, and O blood group positive. In addition, hereditary mental illness was present in families of patients with the recurrent form, the mothers were O blood group positive, and they tended to be better educated. Patients with the progressive form tended to have positive skin tests for 'antitissue immune sera', hemagglutinating and complete anti-brain antibodies, and incomplete higher education. The delineation of such biosocial factors in relation to the various forms of schizophrenia may provide diagnostic criteria and an inkling to biosocial rehabilitation measures. References 8 (Russian).

12172/5915  
CSO: 1840/2295

## PUBLIC HEALTH

### MEDICAL APPLICATIONS OF AN-2 AIRPLANE

Moscow PRAVDA in Russian 7 Jun 86 p 1

[Article by V. Torskiy, Chimkent, KazSSR: "The Forty-First Specialty: Fact and Commentary"]

[Text] The AN-2 airplane has acquired one more specialty, its forty-first--a medical specialty. But not as a means of transport--that function has already been fulfilled by the airplane. This ubiquitous biplane is presently called the "winged healer". Such was the conclusion of the state committee engaged in multi-lateral technical tests of an airborne barochamber created by enthusiasts at the hospital for rapid and emergency aid [skoraya pomoshch] in the city of Chimkent.

Two and a half years ago PRAVDA carried an article on the introduction of a barocomplex--a system of chambers--for employing oxygen procedures at elevated atmospheric pressure. With its aid, some serious ailments could be successfully treated. The designers had considered this work unfinished even at that time. In their opinion, a maximum effect can be obtained with this novelty by getting the chamber to the house of the patient, reaching the most difficultly-accessible residential points. To this end, a mobile service facility had to be added to the pressure system: a ground and a winged one. The existence of such a system is now a reality.

The idea of the department head of the Alma-Ata Scientific Research Institute of Regional Pathology, T. O. Orynbayev, to build his own barocenter has been gradually realized.

A construction office was established at community centers. In their free time, some enthusiasts designed the chambers, worked out principally-new schemata for locating, mounting and ensuring the operation of the apparatus.

"With respect to range of application," said V. V. Denisov, president of the state committee, head of the department of the state testing of medical technology of the All-Union Scientific Research Institute of Medical Technology of the USSR Ministry of Health, "there is no barocomplex in the country which would be equal to the Chimkent complex. It was created, it seems, by people far from medicine. As we say, the complex was built by enthusiasts."

This new item has become known in other parts of the country. Engineers and medical personnel from Uzbekistan, Belorussia, and the Baltic and Transcaucasian republics have come to see it. The residents of Chimgent are dealing cautiously with the experiment.

"If we need help, we will go to you," said Turmakhan Orynbayevich to the guests.

This promise is, unfortunately, difficult to keep. The reason is the position of official channels of the republic. Especially, the Ministry of Health (Minzdrav) of KazSSR does not provide the means necessary for the development of the system, does not plan the medical personnel staff for carrying out experiments and for testing the equipment.

12999/5915  
CSO: 1840/1243

## INTERNATIONAL MEDICAL SYMPOSIUM IN TBILISI

Tbilisi ZARYA VOSTOKA in Russian 28 Jun 86 p 4

[Article by Guliko Khetaguri under the rubric "News in Brief": "At the 'Round Table' of Medical Personnel"]

[Text] The work of the international medical symposium has come to an end in Tbilisi. The symposium had been convoked on the initiative of the Administration of New Therapeutic Agents and Medical Technology of the USSR Ministry of Health, the Center for Radioimmunological and Immunoenzymic Diagnosis of the Scientific Research Institute of Cardiology and the Main Administration of Pharmacies (CAPU) of the Ministry of Health of the republic, the English "Squibb" company and the Yugoslavian "Zorka-Shchabets" firm.

Attention of the participants of the conference was centered on the problems of current methods of diagnosing and treating cardiovascular pathologies. Lectures were presented by Professor I. Khantslik (Poland), M. Horvat (Yugoslavia), G. Mancina (Italy), Doctor I. Veer (Great Britain) and others.

Pointed discussions were conducted at the "round table" led by Professor V. Kavtaradze, N. Kipshidze and R. Kurashvili, candidate of medical sciences.

"But, dispute is known to bring out the truth," noted, with a smile, the vice-president of the "Squibb" company, Dr. Boris Steinberg. "The symposium held in Georgia certainly remains an important step to strengthen international scientific collaboration between the medical and scientific organizations of our countries."

An agency of this company, to make available medical preparations and equipment, will open next year in Moscow. The Squibb company was the first in this world to produce, on an industrial scale, penicillin, streptomycin and many other current antibiotics. The antihypertensive drug "Kapoten", which does not affect the biochemical parameters, was produced in the laboratories of this company.

Pharmaceutical preparations, analytical chemicals, infusion solutions, herbal medicines, x-ray films, surgical materials--this is a far-from-complete list of products issued by still another promoter of the symposium, the "Zorka-Shchabets" company, items available in our country through one of the largest foreign trade organizations of Yugoslavia "Inter export".

The director of the Moscow branch of "Interexport", Dr. Dragan Milyutinovich, pointed out the great importance of the symposium and expressed his conviction that further contacts concerning human health protection between specialists and scientists in our countries will result in mutual benefit.

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## DETERIORATION IN DELIVERY OF HOSPITAL SUPPLIES

Moscow IZVESTIYA in Russian 27 May 86 p 3

[Article by I. Berzon, head doctor at the city clinic hospital No. 20, meritorious physician of the RFSFR, deputy of the city soviet, Krasnoyarsk, under the rubric "The Service of Health: Experience and Problems": "An Iron for the Hospital"]

[Text] I was induced to write this letter to the editorial office concerning a subject which, perhaps, will be considered banal: the problem of securing the material and technical needs of public health institutions.

I am no novice in the field of public health. I worked in the village as a surgeon. Then I was in charge of the departments of public health, and for the last twenty years I've been head of a clinic hospital.

Over recent years in this country huge clinic hospitals for a thousand, a thousand and a half, two thousand beds have been built. One and a half to two thousand people, and sometimes more, usually work in these institutions. They are, if it is permissible to resort to such an analogy, genuine factories producing health. And, the directors of manufacturing enterprises will forgive me, the complex conglomerate of people who are under the roof of the hospital is at times more complicated to manage than a factory. Even if it is only because at a factory those same two or three thousand people are working, and the rest are tools and machinery, whereas in a hospital, with the same group of people and with a large household to run, there are still one and a half to two thousand patients.

In a hospital the daily coordination of the work of all links is essential. A well-defined cooperation is needed between the clinical branches and the so-called auxiliary ones--laboratories, X-ray rooms, pharmacy, anaesthesiology, and others.

The object of our concern is sick people. This should not be forgotten for a minute. Sick people should be not only treated, but also fed, and not simply fed. Food is a medicinal factor. Dozens of different "diets" are prepared daily in our hospital. The pharmacy has its own "kitchen."

You will say: it's your household--you run it. You can't, so to speak, back out now... This is true. And, if we speak seriously, head doctors need to be prepared beforehand and given the necessary knowledge. But there are difficulties in the technical, material plan which he can't solve through his own efforts.

I will tell you a bit more about our clinic hospital No. 20 in the city of Krasnoyarsk. It has more than one and a half thousand beds, more than forty clinical and auxiliary branches. The staff at this hospital numbers almost two thousand people.

We offer not only systematic, but, in many cases, round-the-clock medical first aid. In 1985, 83 thousand people turned to the hospital and approximately 28 thousand were hospitalized.

We also accommodate the clinical base of ten departments from Krasnoyarsk Medical Institute. This means that within the hospital walls teachers daily conduct classes with students.

A clinic like this is a complicated organism: eight medical and twelve auxiliary wings over an area of forty-seven thousand square meters. And not simply meters! Over this area is dispersed the most varied technical and technological equipment. The hospital consists of kilometers of electrical networks, water pipes, and sewer systems. It is a heat and steam supply, a conductor of oxygen, compressed air, and nitrous oxide. It is, not counting modern technology, more than five thousand electrical sockets. It is twenty elevators and video-telephones. Finally, our windows--there are about three thousand of them.

All of this has its period of operation. And under the conditions of a hospital, it is an intensive, round-the-clock operation. It is no wonder that more frequent replacements are sometimes demanded. And what are in the orders for our economic services? In 1985 we were allotted: 600 kilograms of paint, 500 kilograms of paper, 100 square meters of window glass, 35 kilograms of bath soap, 200 electric light bulbs... And not one unit of sanitation-technical or electrical equipment.

A sink for washing broke--there was nothing to replace it with. A lavatory pan broke--they explain: all medical institutions in our region were allotted seven lavatory pans. Are you supposed to send a patient to the next building? There's often nothing to replace broken windows with.

I already mentioned that over the last year 83 thousand people turned to us. Each was given at least a certificate--and this amounts to 83 thousand forms. From those who were accepted for treatment, we got 28 thousand histories of illnesses. Even if our records were reduced, tons of paper would still be needed for them. And they allot to us 300-500 kilograms a year.

The surgery department, operating rooms, maternity home--these are the holy of holies for hospitals. In order to observe the necessary cleanliness here, tile is needed (they've stopped allotting it in general), and white enamel is needed (there is also none of that).

With what does one iron linen in the department? It is a difficult problem--to buy electrical irons. There is no noncash sale of them.

One of the wings of the hospital is almost continually under capital repair. Tons of paint, thousands of meters of linoleum, cable products, and electric

lamps are needed. Hundreds of appellations, but no funds. In answer to requests the organizers of public health spread their hands. The workers of the ispolkoms and deputies do much to help us. But they are far from always successful.

What then can a head doctor and his household management do? At our conferences, whether the talk is about capital repair or preparation for the winter, expressions like these are in fashion most of all: "knock out," "get," "obtain." But even here there are limits. You can get 100 kilograms of paint, hundreds of meters of linoleum. But how and where can one get tons of paint, thousands of meters of piping and many other things necessary for capital repair? Today signs appear on the doors of the directors of some production enterprises in our city: "We ask you not to appeal with questions about the distribution of reserve materials."

We live in a society where everything is planned, including the supply of materials and equipment. Thus, can it really be that it is in getting places and in acquisition that the virtue of a hospital head lies, forced for the sake of this to abandon medical and organizational matters and leadership by the physician-collective?

You know, after an inspection by the control-inspection authority, initiative and enterprise, which were so praiseworthy even yesterday, are called differently--they are a violation of financial discipline. As for concealing, even a director of a factory, helping us, in one way or another, comes into conflict with the law. And it turns out: on the one hand, some fine fellows only just managed to repair the hospital. On the other hand, perhaps a reprimand for illegal business. And it's good, if it's only a reprimand. While associating with colleagues at conferences, being in other Siberian cities, I more than once was convinced that they have the same problem.

All of these are questions not only about normal work, but also about the prestige of our medical institutions. One has to see with sadness that many hospitals which were always an example of cleanliness and order are ceasing to be that. I think that it is time to change the attitude towards the needs of hospitals, to organize their material supply differently. Medicine needs radical help. By the way, there is in this country a positive experiment on this account. We will say that in the Lithuanian SSR the technical service and operation of medical institutions was taken on by a specialized repair-construction-operational directorate, "Medik." And the head doctors were enabled to busy themselves with their own responsibilities, having ceased being "acquisitors." And the main thing--the cause was won.

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IMPROVEMENT OF PERIODIC MEDICAL EXAMINATIONS OF WORKERS DURING TRANSITION  
TO DISPENSARIZATION OF ENTIRE POPULATION

Moscow SOVETSKOYE ZDRAVOOKHRANENIYE in Russian No 4, Apr 86  
(manuscript received 11 May 85) pp 15-18

[Article by Ye. I. Vorobyev, A. A. Mikhaylenko, V. M. Prusakov, V. I.  
Kuryshkin, Ye. I. Samson, and B. V. Gorodiskiy, USSR Ministry of Health;  
Institute of Biophysics, USSR Ministry of Health, Moscow]

[Abstract] One means of solving the problem of periodic medical screening [dispensarization] of the entire population is to consider the experience accumulated in the process of improving the system of periodic medical examination using modern hardware. The orientation of the system toward estimating the condition of health of all patients could serve as the material basis for dispensarization of the entire population. The system consists of two large sections: the office which performs the initial expert evaluation and the goal-oriented screening program. The former is intended to estimate the status of the patient, the latter to provide early determination of disease states. This article outlines the system utilizing two medical specialists and one computer specialist to perform these two functions. A minicomputer data base utilizes information provided by the medical history questionnaire and devices which automatically record physiological parameters to develop the initial expert evaluation of the patient's status. Further improvements to the system will allow it to be used for the mass prophylactic examinations. Figures 2, references 7 (Russian).

6508/5915  
CSO: 1840/2202

BASIC PRINCIPLES OF ORGANIZATION OF SANITARY-EPIDEMIOLOGIC SERVICE IN  
DEMOCRATIC REPUBLIC OF AFGHANISTAN

Moscow SOVETSKOYE ZDRAVOOKHRANENIYE in Russian No 4, Apr 86  
(manuscript received 11 Jul 85) pp 53-57

[Article by Nabi Kamyar, Minister of Health, Democratic Republic of Afghanistan,  
and P. P. Petrov, doctor of medical sciences]

[Abstract] Although the April 1978 revolution has installed a democratic government in Afghanistan, the public health situation there continues to be tense, largely as a result of continued poor health practices and the effects of previous regimes. In order to increase the authority of sanitary-epidemiologic stations and of their workers, resolutions have been passed on the imposition of monetary fines against sanitary-epidemiologic service personnel for poor practices, as well as resolutions calling for cessation of outmoded practices not meeting the sanitary requirements of today. The prevention of infectious and parasitic diseases is a matter of particular importance. Since only 20% of the urban and 6% of the rural population of the country has access to good quality drinking water, plans for economic and social development should include specific measures for improvement of water supply to the population. Interdepartmental cooperation in the area of health maintenance has not yet reached the desired level. The low level of general sanitary education of the population is another problem which is being addressed. In 1984, the Republic Administration of Sanitary Education showed 45 movies, 1500 filmstrips, gave 450 lectures, held 1200 discussions, produced 4 posters, 9 pamphlets and 5 information sheets to improve the level of education of the country. Special facilities have been set up for sanitary-epidemiologic stations in a number of cities. The government has obligated the ministries, departments and local State Administrative Organizations, as well as leaders of enterprises, institutions and other organizations to take steps to improve the sanitary-epidemiologic situation in their areas of responsibility.

6508/5915

CSO: 1840/2202

## AGE-RELATED DYNAMICS OF REDUCTION OF MORTALITY OF HUMANS AFTER CHANGES OF EXTERNAL EFFECTS

Kiev DOKLADY AKADEMII NAUK UKRAINSKOY SSR, SERIYA B: GEOLOGICHESKIYE, KHIMICHESKIYE I BIOLOGICHESKIYE NAUKI in Russian No 3, Mar 86  
(manuscript received 15 Nov 85) pp 66-68

[Article by Yu. V. Pakin, Institute of Gerontology, USSR Academy of Medical Sciences]

[Abstract] Statistical material concerning mortality rates in various countries for the period from the mid 19th century to the mid 1970s revealed age-related mechanisms of reduction of mortality, provided theoretical substantiation of reduction of age-related mortality due to improvement of the external environment and indicated the dynamics of this process. Annual shifts in mortality were compared in different age groups, showing that reduction of the mortality rate proceeds by the regularity: mean annual reduction of mortality increases with increase of age. The dependence of the mean annual shifts of mortality on age groups is nearly exponential. The mechanism does not depend on the historical change of the structure of causes of death but agrees with ideas concerning the physiology of aging in regard to the increase of sensitivity of the body to changes of external conditions with aging. Improvement of external conditions improves conditions of life and reduces mortality with an intensity increasing with aging. The data obtained agree with concepts of experimental gerontology. Figure 1; references 15: 9 Russian, 6 Western.

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CSO: 1840/2244

UDC 616-084.3:[616-074/-078:65.0

## NEED FOR LABORATORY AND DIAGNOSTIC STUDIES DURING TRANSITION TO UNIVERSAL DISPENSARIZATION PROGRAM

Moscow LABORATORNOYE DELO in Russian No 2, Feb 86  
(manuscript received 20 Feb 85) pp 120-122

[Article by N. M. Shumbalov, All-Union Scientific Research Institute of Social Hygiene and Public Health Organization imeni N. A. Semashko, USSR Ministry of Health, Moscow]

[Abstract] The need for and methods of improving the quality of medical care and for increasing efficiency of medical institutions in order to provide adequate dispensarization for the entire population are described and discussed. The importance of an increase of diagnostic services, especially laboratories, in solving this need are described. An experiment carried out at the N. A. Semashko Research Institute of Social Hygiene and Public Health Organization, aimed at determining the scope and organizational form of aid necessary to

ensure adequate universal dispensarization, are also described and discussed. Preliminary data concerning the need for and scope of laboratory analyses are presented. Laboratory tests recommended for persons under 35 years of age and for those over 35, for patients and for persons at high risk are described briefly.

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UDC 614.79:362.11

# STATE OF A PROSPECT FOR DEVELOPMENT OF IN-PATIENT MEDICAL ASSISTANCE TO RURAL POPULATION OF UZBEK REPUBLIC

Tashkent MEDITSINSKIY ZHURNAL UZBEKISTAN in Russian No 3, Mar 86  
(manuscript received 15 Dec 85) pp 6-8

[Article by K. F. Bakirkhanov and P. R. Menlikulov, candidates of medical sciences, UzSSR Ministry of Health]

[Abstract] During the May 82 Plenary Session of CC CPSU, a decision was reached to improve medical service to rural areas by expanding ambulatory, polyclinic, in-patient and specialized services. In the UzSSR, rural residents represent 59% of the total population. The principal treatment facilities consist of central rayon hospitals. To extend specialized assistance to the rural population, 12 substations were organized (otolaryngological, ophthalmological, inflammation and trauma units). The current state of the local hospitals shows weak spots: inadequate number of beds, converted rather than constructed facilities, inadequate laboratory support. Rural facilities must be modernized to be comparable to municipal hospitals. Rayon hospitals should increase their bed capacity, some specialized centers should become inter-rayon, bringing other medical specialties into the system.

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CSO: 1840/2250

UDC 614.86+617-001-053.2/.5

# PEDIATRIC TRAFFIC-RELATED ACCIDENTS

Tashkent MEDITSINSKIY ZHURNAL UZBEKISTANA in Russian No 3, Mar 86  
(manuscript received 11 Jun 84) pp 35-36

[Article by M. Kadyrov, Department of Traumatology, Orthopedics and Military Field Surgery, Samarkand Order of Peoples Friendship State Medical Institute imeni I. P. Pavlov; Administration of Internal Affairs--(UVD--Hospital of Samarkand Oblispolkom)]

[Abstract] Traffic-related injuries often lead to death or incapacitation. Principal causes of pediatric traffic-related accidents were investigated on

the basis of reports collected during 1979-1983. Of 3112 reported incidents, 777 involved teenagers and children. The highest number of injuries was to the head (34.4%); seasonally, the accidents ranged from a low of 180 in summer to 209 in winter. Most of them occurred on weekends and in the evenings. Other statistics showed who was at fault, including lack of proper street crossing controls.

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CSO: 1840/2250

UDC 616.9-084+614.4](470.313)

#### PRINCIPAL DIRECTIONS IN PREVENTION OF INFECTIOUS DISEASES IN RYAZAN OBLAST

Moscow MEDITSINSKAYA SESTRA in Russian No 4, Apr 86 pp 16-18

[Article by G. A. Strelyukhin, Chief Epidemiologist, Ryazan Oblast Health Division]

[Abstract] Developments in medical science have helped in reducing the level of infectious diseases: typhoid, dysentery, measles, polio, malaria, etc. Presently, about 30 forms of infectious diseases are still registered in Ryazan Oblast, but 90% consist of viral respiratory infections and pneumonia. Immunity to diphtheria was lost recently and the number of cases is on the rise. Inadequate sterilization of instruments appears to be the problem, so now there exist 25 centralized sterilization centers in the Oblast. Popular and professional education will help in making everybody aware of the problems and the need to seek medical help, especially in gastrointestinal infections (83% of those affected either do not do this or are self-treaters). Expansion of the medical network will assist in these preventive measures.

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UDC 613.81/.83+616.89-008.441.13-082(470.313)

#### EXPERIENCE IN ORGANIZING AND DEVELOPMENT OF NARCOLOGIC SERVICE IN RYAZAN OBLAST

Moscow MEDITSINSKAYA SESTRA in Russian No 4, Apr 86 pp 18-20

[Article by G. I. Kotov, Ryazan Oblast Narcologic Outpatient Clinic]

[Abstract] The Oblast Narcological Dispensary, with a 240-bed hospital, was opened in Ryazan in 1980. It manages an ambulatory network, the "dispensarization" program for related patients and physician-feldsher units. This article deals essentially with alcohol abuse control. Stress in this program centers on opening a wide network of treatment centers, sobering-up points etc. About

1/3 of the alcoholics are first diagnosed at such sites. Party organs participate actively in this anti-alcohol program, concentrating their efforts on teenagers. An extensive educational program has been initiated by physicians. These activities are better organized in cities than in the rural areas where much more work is needed.

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#### OPTIMIZATION OF INFORMATION INPUT TO PUBLIC HEALTH ADMINISTRATION PROCESS IN OBLAST

Kiev VRACHEBNOYE DELO in Russian No 3, Mar 86 (manuscript received 24 Apr 85)  
pp 115-117

[Article by V. M. Kostyuk, Kirovograd Oblast Division of Public Health]

[Abstract]. Organization of annual comprehensive health examinations of the population results in an explosive increase in the information volume on health issues and creates a series of problems concerned with its processing. Following the directives of USSR Ministry of Health, microprocessors were introduced to handle the information flow using programs: "Automated control of filing documents (ASKID)". Other programs are in various stages of development: "Planning, analysis and registration of personnel (PAUK)"; "Automated system of analysis of labor loss and sickness (ASATIZ)" and "Complex automatic system for medical examination of the population (KASMON)". On many levels, automated management system units have been organized (ASU).

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#### SYSTEMATIC APPROACH TO PLANNING ACTIVITY OF SANITARY-EPIDEMIOLOGICAL SERVICE

Kiev VRACHEBNOYE DELO in Russian No 3, Mar 86 (manuscript received 23 Aug 85)  
pp 117-119

[Article by N. P. Gladkiy, V. I. Isayev, Ye. K. Kurilov, L. S. Dvoryakina and V. A. Ovchinnikova, Dnepropetrovsk Oblast Sanitary-Epidemiological Station]

[Abstract] The sanitary-epidemiological service expands its activity every year. Optimization of its efforts depends on planning of all related activities. This process consists of the following: a) analysis of statistical data, socio-economic and demographic processes, disease incidence, resources and staff capability; b) determination of goals and tasks for a given period; c) development of organizational and practical measures to reach these goals;

and d) interaction with other organizations and entities. One of the more important aspects is control of the execution of these plans and evaluation of end results. Improvements in systematic approach to planning and its application to everyday practice will lead to optimal utilization of all resources and help in solving effectively the tasks designed to improve the health status of the population.

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UDC 613.646:63]-07:618.17

#### REPRODUCTIVE FUNCTION OF FEMALE WORKERS IN MAJOR OCCUPATIONS IN AGRICULTURE

Moscow GIGIYENA TRUDA I PROFESSIONALNYYE ZABOLEVANIYA in Russian No 10,  
Oct 85 (manuscript received 19 Feb 85) pp 5-9

[Article by V. N. Chusova, Institute of Labor Hygiene and Occupational Diseases, Kiev]

[Abstract] Examinations were conducted on 75,268 women 18 to 59 years of age representing 94-98% of the total permanent adult female residents in 15 agricultural locations. Most information for this study was obtained by questioning, gynecologic examinations, diagnostic testing, analysis of total morbidity records and health records over the past 15 to 25 years, analysis of the results of pregnancy based on personal reports and medical documents, studies and analysis of sanitary-hygienic and meteorological data. The results were analyzed by computer. It was found that the complex of factors of modern agricultural production (beet and animal farms) facilitates the development or worsens the course of some forms of gynecological disease. Inflammatory processes of the reproductive organs are significantly more frequent among animal farm workers, while beet farmers more frequently suffer from uterine prolapse. Pathologic climacteric of primarily autonomic-neurotic nature is more frequently seen in beet farmers. The labor activity and productivity of labor decreases by an average of 20% among women with indications of pathologic climacteric. Bacterial and fungal control measures can be effective in animal farms; limitation of the use of women who have suffered muscular damage during birth in beet farms is recommended. The work of pregnant women in agricultural occupations should be limited to prevent spontaneous abortions and premature births. References 4 (Russian).

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CSO: 1840/2196

## IMPROVING ORGANIZATION AND CONDUCT OF PROPHYLACTIC MEDICAL EXAMINATIONS OF WORKERS IN SHIPBUILDING

Moscow GIGIYENA TRUDA I PROFESSIONALNYYE ZABOLEVANIYE in Russian No 10,  
Oct 85 (manuscript received 19 Sep 84) pp 42-43

[Article by G. A. Trubnikov, Yu. A. Afanasyev, K. S. Yatsenko and G. K. Ksenofontova, Medical Institute imeni A. V. Luchacharskiy and Occupational Pathology Center, Oblast Clinical Hospital No 1, Astrakhan]

[Abstract] The purpose of this study was to determine the effectiveness of the traditional system for the conduct of periodic physical examinations of workers in the major occupations in shipbuilding in Astrakhan. Data were analyzed from primary medical documentation on 3700 workers in the major occupations involved in shipbuilding with various frequencies of periodic physical examinations, and detailed medical studies of 1100 workers were performed. Percentages of occurrence of various pathologies among the occupational groups are noted. It is recommended that the primary medical documentation for workers include a special periodic physical examination health questionnaire to assist the physician in locating early symptoms of defects in various systems, both by clinical examination and by means of laboratory and instrumental testing. Interdepartmental specialized medical diagnostic offices should be set up to assist plant clinics and territorial polyclinics. References 8 (Russian).

6508/5915  
CSO: 1840/2196

## EFFICIENT MEDICAL CARE

Tbilisi ZARYA VOSTOKA in Russian 16 Apr 86 p 4

[GRUZINFORM (Georgian Information Service) interview with G. V. Ilizarov, director, Kurgan Scientific Research Institute of Experimental and Clinical Orthopedics and Traumatology]

[Abstract] In line with Party policy on health as enunciated by comrade M. S. Gorbachev, Soviet medicine must take steps to become a more efficient provider of health care. One step in the right direction would be the creation of specialized research institutes with appropriate branches to concentrate research efforts and avoid duplication. An added benefit of such an approach is the greater cost efficiency of such operations, since it is quite impossible to equip every institute or laboratory with the newest instruments, equipment and supplies. At the Kurgan Institute a special effort is made to harness, insofar as possible, the natural biological or physiological potential of patients to secure a cure or rehabilitation. One of the directions that this takes is an attempt at retaining spinal cord function following various injuries, while another approach utilizes electric currents generated by the body in manipulating artificial limbs. Finally, rehabilitation of workers and other Soviet citizens has economic benefits as it increases their productivity and reduces the cost of medical care.

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## READERS' VIEWS ON PHARMACY SERVICES

Moscow SOVETSKAYA ROSSIYA in Russian 7 May 86 p 3

[Letters to the editor from the Zlatkin family, Murmansk, A. Sapozhnikov, Moscow, V. Kudryakov, Chelyabinsk Oblast, G. Kazakov, Saratov, and N. Yermakov, Chelyabinsk Oblast]

[Abstract] Articles in SOVETSKAYA ROSSIYA on the state of pharmacy services have elicited a large number of letters from across the RSFSR, and such comments will form the basis of an interview to be conducted with personnel of the Main Pharmaceutical Administration of the RSFSR Ministry of Health. The present letters addressed mundane problems which cause the citizenry considerable concern and are a source of inconvenience. For example, if three pharmacies are located in a rayon, why can't one of them be open on Sundays? Another case in point: Why can't pharmacies be located at polyclinics for speedy and efficient filling of prescriptions? What is the excuse for unavailability of vitamins in Murmansk? Why does it take months to get some prescriptions filled?

12172/5915  
CSO: 1840/1239

## STATUS OF MEDICAL STATISTICS

Moscow IZVESTIYA in Russian 13 Jun 86 p 2

[Article by A. Nemenov, organizer--Higher Category--of public health and honored physician of the RSFSR, Tula]

[Abstract] The low prestige of medical statisticians and the rather disorganized manner of collecting medical statistics result in many procedural errors. In many cases, data are not collected by statistical bureaus, but by clinical specialists and, as a result, have a strong subjective coloration. Throughout it all, the system is loaded with paperwork and inconsistencies that lead to errors, misinterpretations, and dubious decisions. What is required is a radical changeover to a unified computer-based information storage, retrieval and analysis system. As it is, at the present time the so-called machine processing delivers data that is a year-and-a-half to two years late and too old to be of any real value.

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CSO: 1840/1240

## SIGNIFICANCE OF MEDICAL STATISTICS

Moscow IZVESTIYA in Russian 13 Jun 86 p 2

[Article by V. Gubenko, veteran of the Great Patriotic War, Honored Worker of Public Health, Moscow]

[Abstract] Years of experience in the field of medical statistics have shown that statistical data are all too often misused in evaluating the job performance of physicians and the achievements, or lack of them, of medical institutions. It is obvious that a physician who handles the more difficult cases will be unable to see as many patients as one who carefully selects the easy cases, or that a polyclinic with an excellent reputation will attract the more desperate patients that will present diagnostic and therapeutic problems. In either case, more difficult problems make for less complementary statistics if only the cure rate or mortality figures are considered. Unfortunately, all too often impressions are formed on just such cursory evaluation of statistics. It appears that the All-Union Scientific Research Institute of Social Hygiene and Public Health Administration imeni N. A. Semashko and the Medical Statistics Administration of the USSR Ministry of Health should realize that there is room for improvement and that many forms of statistical control have a negative impact on health care.

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CSO: 1840/1240

## MANAGEMENT OF ONCOLOGIC PATIENTS

Moscow IZVESTIYA in Russian 14 Jun 86 p 3

[Article by V. Burakovskiy, director and academician, Institute of Cardiovascular Surgery, USSR Academy of Medical Sciences]

[Abstract] The tremendous progress in the management of oncologic patients and the resultant high cure rate have made rehabilitation of this group of people very important. In 1972, Professor V. Gerasimenko of the All-Union Oncological Scientific Center initiated an all-encompassing rehabilitation program, the success of which can be measured by the fact that 80% of the individuals that had gone through the program had rejoined the work force. In the absence of such a program only 30% were able to rejoin the work force. On the basis of such considerations, the development of a variety of prosthetic devices and techniques was initiated in the USSR and has now advanced to the point where Soviet products are equal to, if not better than, those available in the West. In view of this, it seems that the series of studies under the general heading "Development and Clinical Application of Rehabilitation Methods for Oncologic Patients" deserves serious consideration for award of the USSR State Prize.

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CSO: 1840/1241

## EQUAL OPPORTUNITIES IN MEDICAL EDUCATION

Moscow PRAVDA in Russian 21 Jul 86 p 2

[Article by I. Smiyan, professor and rector, Ternopol Medical Institute]

[Abstract] The important document entitled "Fundamental Reform Trends in Higher and Intermediate Specialized Education" issued by the CC CPSU provides important indicators for the future. Experience at Ternopol Medical Institute and observations at other medical institutes in the Ukraine have shown the need to rely on professors who are active in the clinical practice of medicine, and to shy away from 'specialists' that shy away from patients with a variety of excuses. Only actual hands-on experience on a daily basis makes for a good medical educator, one who can instill good working habits and a sense of responsibility in the students. To that end, it would appear that section VII of the document could be strengthened by mandating that the professorial collective be actively engaged in the work of therapeutic and preventive medical services. In addition, it might not be going too far to suggest that section VI, which deals with medical research, include a clause that such laboratories be cost effective to, essentially, keep them on track. Finally, while one can only agree with another proviso in the document calling for increased admissions of military reservists and allied health personnel with at least two years of service, care should be taken not to limit the opportunities for medical studies by rural youth who are most likely to return to their villages as physicians.

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## REGULAR MEDICAL EXAMINATIONS

Moscow KRASNAYA ZVEZDA in Russian 25 May 86 p 4

[Article by Yu. Krinov, colonel (ret.), Order of Lenin Leningrad Military Okrug]

[Abstract] Personal experience of the writer and the experience of other officers have shown that many people delay seeing a physician until a disorder gets to the stage where hospitalization is required. Despite regularly scheduled medical examinations by the medical services, excuses are found to avoid them. And yet, advances in medical technology has made routine checkups a highly efficient operation that requires a minimum of time. Many, however, have come to realize that prevention is better than a cure and have made it a practice not to neglect their regular examinations.

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## DISPENSARIZATION OF WORKERS AT 'DONBASSENERGO' PRODUCTION ELECTRIC POWER ASSOCIATION

Moscow GIGIYENA TRUDA I PROFESSIONALNYYE ZABOLEVANIYA in Russian No 2, Feb 86  
(manuscript received 23 Jul 85) pp 46-47

[Article by Yu. A. Mitsenko]

[Abstract] Based on suggestions made by the branch Laboratory for Occupational Selection and Adaptation of Operating Personnel at Power Enterprises, dispensarization was undertaken of 2,500 operating personnel at 24 enterprises of the Association. Services included occupational examination when hired, periodic physical examination each 2 years, monitoring of the condition of workers, examination of workers with health complaints and certification of workers for transfer to new positions. In addition to the usual clinical examination methods, ECG's and several other cardiovascular studies were routinely performed. After examination, patients were sent to treatment organizations as required or to Donets Medical Institute for further studies if needed to clarify diagnosis. Most patients were treated as outpatients while continuing to work. Respiratory disease morbidity was cut almost in half in 1983 by this system. Of the 2,500 persons examined, 615 showed changes in the functional status of the cardiovascular system and were sent to local treatment organizations for continued studies and subsequent treatment as necessary. These health maintenance measures have been found to be economically justified. References 2 (Russian).

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## CATECHOLAMINE EXCRETION INDICES IN AIR TRAFFIC CONTROLLERS

Moscow GIGIYENA TRUDA I PROFESSIONALNYYE ZABOLEVANIYA in Russian No 2, Feb 86  
(manuscript received 10 Nov 84) pp 53-56

[Article by V. A. Kupriyanov and O. O. Malinovskaya, Scientific Research Neurosurgical Institute imeni Prof. A. L. Polenov, Leningrad]

[Abstract] Twenty-two air traffic controllers from Pulkovo Airport were studied. Tests performed before the working shift began allowed separation of the controllers into 3 groups in terms of excretion of adrenaline, noradrenaline, dopamine and DOPA. Repeated testing after work showed that in almost all cases the amount of excretion of these substances was related to the amount before work. These before-work levels of excretion of catecholamines indicate preferential activation of the hormonal element of the sympathetic-adrenal system among controllers working at nonautomated control points, with activation of the mediator segment among controllers working at automated control

points. The level of excretion of adrenaline was found to vary directly with the workload experienced by the controllers. Chronic psychoemotional overstress is significant in the development of cardiovascular pathology, which is more common among controllers working in more complex regions. References 11: 9 Russian, 2 Western.

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HYGIENIC SIGNIFICANCE OF COMBINED ACTION OF SILICON DIOXIDE CONDENSATION  
AEROSOL AND OZONE

Moscow GIGIYENA TRUDA I PROFESSIONALNYYE ZABOLEVANIYA in Russian No 2, Feb 86  
(manuscript received 9 Oct 84) pp 29-33

[Article by O. V. Kalina, Institute of Hygiene imeni F. F. Erisman, Moscow]

[Abstract] The purpose of this work was to study the nature of the combined action of silicon dioxide condensation aerosol and ozone, leading production environmental factors in plasma processing of quartz. Inhalation tests were performed on 240 female rats over a period of 56 months, 5 days per week, 4 hours per day. The mass and composition of the lung tissue was determined after various experimental times. A tendency was noted toward increased content of total hydroxyproline in the lung tissue throughout the period of inhalation in the "dust" and "gas" groups of experimental animals. Histologic studies of the lung tissue indicated that 3 months' combined exposure to dust and gas caused extensive proliferative processes in the alveolar septa, slight emphysema and an increase in the number of small arteries with thickened walls. The body mass of experimental and control animals remained at the same levels throughout the experiment. Combined exposure to dust and gas caused an increase in fibrogenicity of the aerosol due to adsorption of ozone on aerosol particles. The toxic effect of the ozone was weakened by combining it with the aerosol. References 6: 5 Russian, 1 Western.

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## FUNCTIONAL STATE OF WORKERS SERVICING VARIOUS TYPES OF PLASMA INSTALLATIONS

Moscow GIGIYENA I SANITARIYA in Russian No 7, Jul 85  
(manuscript received 27 Aug 84) pp 87-88

[Article by A. V. Ilnitskaya, Moscow Scientific Research Institute of Hygiene  
imeni F. F. Erisman]

[Abstract] A comparative analysis is presented of the results of physiological observations of the functional status of workers servicing plasma installations for atomization, cutting and melting of metals through the course of the day, allowing a determination of the occupational pathological significance of such factors as noise, ultrasound, metal aerosols, gases, optical band electromagnetic radiation and high concentrations of ions. The status of physiological functions was studied in 23 practically healthy plasma-coating-metallizers, 10 plasma-cutting-machine workers and 10 surfacing machine workers from 21 to 35 years of age, with time in service from 1 to 6 years. The most significant changes indicating nervous and cardiovascular system tension were found in the metallizers. Surfacing workers, unlike the others, were not exposed to high noise levels. Changes observed in these workers could be explained by the increased content of ozone in the workplace. Noise was considered to be the leading harmful factor in the work of cutters and metallizers. Measures intended to improve health conditions at the workplace should be primarily directed toward improvement of equipment and reduction of noise levels, reduction of electromagnetic radiation and localization of harmful substances. Work schedules should also be adjusted to avoid continuous long-term use of plasma-trons. References 6: 4 Russian, 2 Western.

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CSO: 1840/2182

## RADIATION BIOLOGY

### RADIATION AND SAFETY

Moscow ARGUMENTY I FAKTY in Russian No 20, 1986 p 3

[Interview with V. Golikov, doctor of medical sciences and professor, Chair of Radiation Hygiene, Central Institute for the Advanced Training of Physicians]

[Abstract] It is noted that the recent accident in Chernobyl has been blown out of all proportion by the Western news media, with total disregard for some basic facts pertaining to nuclear power stations. First of all, there was no shock wave or light emission with global contamination with radioisotopes as would be the case with an explosion due to an atomic bomb. The emission consisted of relatively innocuous noble gases with a short half-life, with approximately half of the emission accounted for by iodine-131, which also has a short half-life of about 8 days. The maximum level of radiation in the first days of the accident did not exceed 10-15 milliroentgens per hour, and continued to decrease thereafter. The critical level of radiation was not exceeded outside of the 30 km safety zone, and close monitoring has been instituted for iodine-131 in the environment. Again, in none of the rayons of Kiev or Minsk has there been excessive contamination of clothes or foodstuffs. Even if such contamination had occurred, after 80 days the level of radioactivity would be reduced a thousand-fold, presenting no danger whatsoever. It should be mentioned that normal background radiation the world over is on the order of 400 milliroentgens per year and that certain occupational groups (radiologists, cosmonauts, nuclear power station workers) have an allowable limit of 5 roentgens per year with no ill effects. (Interview to be continued.)

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DOSES OF OCCUPATIONAL RADIATION EXPOSURE

Moscow GIGIYENA I SANITARIYA in Russian No 9, Sep 85  
(manuscript received 23 Jul 84) pp 88-90

[Article by V. A. Alekseyeva, V. Yu. Golikov, V. G. Yerkin, V. I. Kovalenko and  
O. V. Lebedev, Leningrad Scientific Research Institute of Radiation Hygiene,  
RSFSR Ministry of Health]

[Abstract] Results are presented from 2-year measurements of individual doses of radiation of personnel conducted in 7 regions of the RSFSR using individual thermoluminescent dosimeters. Persons tested included radiologists and operators of defectoscopes. It is concluded that the working conditions of the contingent studied meet the requirements of the sanitary rules, radiation doses being similar to the levels of exposure of analogous occupations in other countries. Figures 3; references 2 (Russian).

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INFLUENCE OF SUBSTANCES LIBERATED BY POLYMER MATERIAL AND AGE OF ANIMALS

Moscow GIGIYENA I SANITARIYA in Russian No 7, Jul 85  
(manuscript received 1 Feb 85) pp 19-20

[Article by L. P. Aksenova, Moscow Scientific Research Institute of Hygiene  
imeni F. F. Erisman]

[Abstract] A study was performed of the specifics of age sensitivity of older animals to long-term exposure to low-intensity chemical factors such as those generated by polymer construction materials used in residential buildings. White rats were used in the 4-month study with round-the-clock inhalation of volatile substances migrating from polymer materials. The animals studied were 24 months or 4 months in age. The different reaction of the old and the middle-aged animals indicated that the adaptive regulatory mechanisms mobilized in the course of aging to maintain homeostasis in the organism at rest are insufficient to maintain biological capabilities under stress resulting from the exposure to harmful chemical substances, even at low levels, within the maximum permissible concentrations. A reliable increase in alanine transaminase activity in the blood serum of the older animals was observed throughout the experiment, as well as an increase in blood serum cholesterol and a decrease in oxygen consumption. References 3 (Russian).

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CSO: 1840/2182

CONFERENCES

UDC 615.47.03:616-084.3]:061.3(47+57)"1985"

ALL-UNION SCIENTIFIC-TECHNICAL CONFERENCE ON PROBLEMS IN PRODUCTION OF  
EQUIPMENT FOR MASS DISPENSARIZATION OF POPULATION

Moscow MEDITSINSKAYA TEKHNKA in Russian No 2, Mar-Apr 86 pp 62-63

[Article by L. P. Iutin, Moscow]

[Abstract] The title conference was held in Moscow 22-23 Oct 85 with attendance of over 150 specialists. Three sections covered 38 papers on the following general topics: "Methodological Principles of Technical Application of Screening and the Experience Gained in Dispensarization Examinations", "Technical Media for Dispensarization" and "Use of Computer Technology in Automated Dispensarization." Recently, the number of polyclinics increased substantially; new diagnostic methods and equipment have been introduced and made more reliable. To implement the annual health screening of the population, automation of many procedures must be achieved using various microprocessors, and pre-physician examinations by paramedical personnel must be introduced.

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MISCELLANEOUS

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OPERATION OF INTER-RAYON CENTRALIZED BIOCHEMICAL LABORATORY

Moscow LABORATORNOYE DELO in Russian No 2, Feb 86 (manuscript received 22 Jan 85)  
pp 123-124

[Article by T. Ya. Leonova and E. P. Shamolina and P. N. Maltsev, Chair of Therapy, Faculty for the Advanced Training of Physicians, Novosibirsk Medical Institute; Polyclinic No 1, Municipal Department of Health]

[Abstract] Operation of a new, inter-rayon centralized biochemical laboratory opened in Novosibirsk is described and discussed. Increased efficiency and improvement of equipment have made it possible to expand test procedures available from 22 to 41. The number of analyses performed has increased from 56,834 to 124,856 in the 1.5 years of operation of the laboratory. The number of tests per patient visit increased 4-fold. Centralization improved labor productivity with each associate performing 10,405 analyses per annum as opposed to 7000 procedures per associate per annum before centralization.

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UDC 615.471:616-073.96/.97]:676.36

MULTIFUNCTIONAL RECORDER WITH UV-SENSITIVE PAPER

Moscow MEDITSINSKAYA TEKHNIKA in Russian No 2, Mar-Apr 86  
(manuscript received 11 Mar 85) pp 53-54

[Article by V. K. Brykin, V. N. Panov and D. M. Sherman, Scientific Production Association for Radioelectronic Medical Equipment, Lvov]

[Abstract] A multifunctional recorder was designed using UV-sensitive paper producing instantaneous recording of the signals. The unit has a capacity for eight operational modes registering slow and rapid physiological processes. Technical characteristics are reported. Hard copy and video-screen records are available. The apparatus has wide applicability. Field tests showed that it is a useful, reliable instrument. Figure 1; references 4 (Russian).

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## HYGIENIC STANDARDIZATION OF NEW CHEMICAL SUBSTANCES

Moscow GIGIYENA TRUDA I PROFESSIONALNYYE ZABOLEVANIYA in Russian No 2,  
Feb 86 (manuscript received 6 May 85) pp 40-43

[Article by I. M. Trakhtenberg, M. I. Mikheyev, G. A. Gudzovskiy, G. T. Pisko,  
M. N. Korshun and V. F. Torbin]

[Abstract] The authors raise once again the question of the need to develop hygienic standards for maximum permissible concentrations for all new chemical substances. They state that the addition of inorganic salts of little activity, inert fillers, emulsifiers which are nonvolatile and other substances unlikely to enter the air of production areas should not require hygienic standardization of chemicals previously known as safe. The development of a priority list for substances to be standardized is a difficult but pressing task. In addition to the maximum permissible concentration, it is suggested that lists be drawn up of substances for which hygienic standards have not been established. The lists would have the force only of recommendations. It is also suggested that primary evaluations of substances be performed more broadly by the Departments of Toxicology of Sanitary-Hygiene Laboratories at Republic and Oblast Sanitary-Epidemiologic Stations. It is noted that the list of substances with established maximum permissible concentrations in the USSR is significantly longer than analogous lists in other industrially-developed nations. References 20: 13 Russian, 7 Western.

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UDC 615.471.03:614.73-07

## WIND WHEEL-DRIVEN ASPIRATOR

Moscow GIGIYENA I SANITARIYA in Russian No 7, Jul 85  
(manuscript received 1 Jun 84) pp 71-72

[Article by R. Ya. Maslovskiy]

[Abstract] When radioactive materials from various laboratories and organizations are transported, there is a possibility of contaminating road surfaces. As vehicles drive over the roads, the radioactive contamination may enter the atmosphere and therefore be inhaled. The author's group has developed an aspiration installation which is mounted on a small truck for collection of air samples. The aspirator is driven by a wind wheel which is also mounted on the front of the truck. The 2 m diameter wind wheel has 3 variable pitch blades and develops 0.345 kw of power as the truck is driven at 20 to 40 km/hr. The wind wheel-driven aspirator has a throughput of 1100 m<sup>3</sup>/hr and a 300 mm diameter filter holder. The device has been in use since 1979 and has proven to be quiet, reliable and highly productive. A photograph is presented. Figures 2, references 4 (Russian)

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